

**TUMAMOC LANDFILL, TUCSON, ARIZONA**

**ANNUAL MONITORING REPORT FOR 2015  
GROUNDWATER AND METHANE GAS MONITORING RESULTS**

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## List of Acronyms

Aquifer Water Quality Standards	AWQS
Arizona Department of Environmental Quality	ADEQ
Carbon Dioxide	CO <sub>2</sub>
City of Tucson Environmental Services Department	COT-ES
Dissolved Oxygen	DO
Feet Below Ground Surface	ft bgs
Feet Above Mean Sea Level	ft amsl
Landfill Gas	LFG
Nephelometric Turbidity Units	NTU
Non-detect	ND
Methane	CH <sub>4</sub>
Micrograms per liter	µg/l
Milligrams per liter	mg/l
Oxidation Reduction Potential	ORP
Oxygen	O <sub>2</sub>
Preliminary Investigation	PI
Quality Assurance/Quality Control	QA/QC
Relative Percent Difference	RPD
Specific Conductivity	SpC
Tetrachloroethene	PCE
Trichloroethene	TCE
Volatile Organic Compounds	VOCs
Water Level	WL in feet below ground surface
Water Quality Assurance Revolving Fund	WQARF
Water Table Elevation	WTE in feet above mean sea level

## 1.0 INTRODUCTION

The City of Tucson - Environmental Services Department (COT-ES) has prepared this report to document groundwater and methane gas monitoring activities conducted in 2015 at the Tumamoc Landfill located at 2100 W. Star Pass Boulevard in Tucson, Arizona. The location of the Tumamoc Landfill is presented on **Figure 1**. The COT operated the Tumamoc Landfill from 1962 to 1966 for city-wide municipal waste disposal under a lease agreement with the University of Arizona<sup>1</sup>. The COT-ES has correspondence in the Tumamoc project file that references that the University of Arizona disposed of industrial wastes, possibly including hazardous substances, during the 1962 through 1996 operational period<sup>2</sup>. The landfill property was deeded to the City of Tucson from Pima County in 2009 when Pima County acquired the Tumamoc Hill property from the Arizona State Land Department. The COT-ES has been monitoring methane gas at the waste footprint boundary adjacent to nearby structures since 2000 and has been monitoring groundwater at the site since 2002.

Historically, tetrachloroethene (PCE) concentrations in groundwater have exceeded the aquifer water quality standard (AWQS) of 5 µg/l in monitoring wells WR-384A, WR-445A and WR-449A at the Tumamoc Landfill. There have been AWQS exceedances of 5 µg/l for trichloroethene (TCE) in monitoring well WR-384A from August of 2014 through August of 2015. Nitrate concentrations have historically been detected above the 10 mg/l AWQS in monitoring wells WR-384A, WR-445A, WR-446A, WR-447A and WR-449A. The source of the nitrate concentrations is considered to be off-site as concentrations were highest in the upgradient groundwater monitoring wells at the site.

The Tumamoc Landfill site was temporarily placed on the Arizona Department of Environmental Quality's (ADEQ) Water Quality Assurance Revolving Fund (WQARF) Preliminary Investigation List in July 2004. The Tumamoc Landfill was de-listed in May 2005 when ADEQ determined that there were no known impacts to residents living in the area. ADEQ may periodically review the site status to determine if it should be placed on the WQARF PI List in the future<sup>3</sup>.

### 1.1 Scope of Work

The following activities were conducted by COT-ES during 2015 at the Tumamoc Landfill:

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<sup>1</sup> EEC Inc., *Environmental Assessment of Tumamoc Hill Solid Waste Landfill*, June 7, 1989

<sup>2</sup> Keene, James, City of Tucson City Manager, *Tumamoc Landfill Update Mayor & Council Memorandum*, September 18, 2000

<sup>3</sup> Miller, Shelley, Site Assessment Unit Environmental Program Specialist at the Arizona Department of Environmental Quality, *Tumamoc Landfill WQRF Preliminary Investigation Site Status*, May 23, 2005

- The depth to the static groundwater level was measured prior to groundwater sample collection on August 26, 2015 and August 27, 2015 from all groundwater monitoring wells at the site.
- Groundwater quality monitoring events were conducted on August 26, 2015 and August 27, 2015 at all monitoring wells at the site. During this sampling event, it was observed that well WR-386A did not have groundwater within the well. Monitoring well WR-386A was constructed to a depth of 55 feet below ground surface (ft bgs).
- Monitoring of perimeter methane gas probes TU-1, TU-2, TU-3, TU-4, TU-5, TU-6, TU-7, TU-8, and TU-9 was performed quarterly during the months of January, April, July, and October in 2015. Percentages of methane ( $\text{CH}_4$ ), carbon dioxide ( $\text{CO}_2$ ) and oxygen ( $\text{O}_2$ ) were measured in the field during each sampling event using a Landtec Gas Analyzer.
- Engineering and Environmental Consultants, Inc. (EEC) from Tucson, Arizona conducted an inspection of the Tumamoc Landfill on September 29, 2015 as part of the required COT-ES annual inspection program for non-regulated closed landfills.

## 2.0 GROUNDWATER MONITORING

The 2015 groundwater sampling event was completed by the COT-ES between August 26, 2015 and August 27, 2015 in general accordance with the 2010 ASTM Standard D6699-01 *Standard Practice for Sampling Liquids Using Bailers* for collecting samples by a single check valve bailer. This standard should be referenced for a review of groundwater sampling and quality control procedures followed by the COT-ES during the 2015 sampling event. A map showing the locations of all monitoring wells at the site is provided in **Figure 2**. Well completion data is presented in **Table 1**.

### 2.1 Water Level Monitoring

Monitoring wells at the site have screens installed at variable depths to characterize deep and shallow groundwater quality and to allow for measurement of vertical hydraulic gradients (**Table 1** and **Table 2**). Several monitoring wells have screens installed across both the deep and shallow groundwater intervals and are denoted as “long screen” wells on **Figure 2**. For the purposes of this investigation, groundwater contour maps were prepared for the monitoring wells having shallow screens (less than 100 ft bgs) and were also prepared for the monitoring wells having deep or long screens as listed on **Table 1** and shown on **Figure 3** and **Figure 4**. Although the long screen lengths in some of these wells may result in groundwater levels that are representative of neither the deep nor the shallow groundwater, but rather have a groundwater level at some intermediate elevation, this methodology provides a better description of the

groundwater flow direction rather than plotting the groundwater depths from all the wells on one map.

**Figure 3** and **Figure 4** represent the potentiometric surfaces of the groundwater based on the water level data collected in August 2015. Groundwater elevations and flow in this area are not typical water table conditions observed in an alluvial aquifer. Groundwater in the vicinity of the Tumamoc Landfill site is located within a bedrock aquifer and the flow is largely influenced by bedding planes, secondary porosity and fracture patterns.

The August 2015 groundwater potentiometric contour maps (**Figure 3** and **Figure 4**) show that the groundwater flow direction in both the shallow and deep intervals of the aquifer is from the southwest to northeast. This flow direction is consistent with previous monitoring events and with the surface drainage patterns. Groundwater elevations in the well pairs indicate that vertical hydraulic gradients are upward as the groundwater elevation in the shallow screened well is lower than the groundwater elevation in the deeper screened well (**Table 2**). The fact that the elevation of groundwater measured in wells installed in the deeper aquifer is higher than the groundwater elevation in the shallow aquifer indicates confined conditions exist in the lower aquifer. The upper aquifer appears to be unconfined in the vicinity of the landfill.

The COT-ES measures static groundwater levels prior to collecting groundwater samples at all monitoring wells at the Tumamoc Landfill site. Based on historical data, the base of the waste in the landfill is estimated to be approximately 2435 feet above mean sea level (ft amsl). The groundwater elevations are used to determine if the groundwater in the upper unconfined aquifer could potentially infiltrate the base of the waste. These groundwater elevations indicate that the base of waste (approximately 2435 ft amsl) has not been saturated by groundwater in the upper unconfined aquifer, as shown on **Figure 5**.

The groundwater level elevations in the deep screened wells at the site ranged from a high elevation at upgradient well WR-454A of 2469.50 ft amsl to the low elevation at downgradient well WR-448A of 2372.44 ft amsl. Monitoring well WR-454A has historically exhibited artesian characteristics (water flows out of the well), but in the last four groundwater monitoring events the water level has been below the top of the well casing. Shallow groundwater elevations for the site ranged from a high elevation at upgradient well WR-455B of 2461.46 ft amsl to a low elevation at downgradient well WR-448B of 2364.48 ft amsl.

The water level elevations in the deep screened wells may reflect confined aquifer conditions and not the depth to water in the confined aquifer below the waste.

The groundwater table continues to decline at a rate of about 1.2 feet per year and, as previously stated, shallow monitoring well WR-386A was identified as being dry in August 2015. The COT-ES used dedicated pressure transducers and data loggers in three of the monitoring wells at the Tumamoc Landfill site prior to 2015. The use of pressure transducers was discontinued at the end of 2014 as a result of the continuing declining water levels at the site.

## **2.2 Groundwater Sampling**

The August 2015 groundwater samples were analyzed for VOCs, anions, metals and general chemistry parameters. The complete analyte list for the August 2015 sampling event is provided in **Appendix A**. The COT-ES collected field measurements for pH, specific conductivity (SpC), temperature, dissolved oxygen (DO) and oxidation reduction potential (ORP) at each monitoring using an YSI multi-parameter meter equipped with a flow-through cell. Field data sheets for this sampling event are included in **Appendix B**.

In the August 2015 sampling event, TCE and nitrate exceeded their respective AWQS concentrations. Concentrations of all other inorganic analytes sampled during this monitoring period were below their associated AWQSs. The laboratory analytical report for the August 2015 sampling event is provided in **Appendix C**.

### **VOCs**

There were no exceedances for PCE in any of the groundwater monitoring wells in the August 2015 sampling event. PCE concentration trends have stabilized in all of the monitoring wells except for concentrations observed at shallow monitoring well WR-384A. PCE concentrations in well WR-384A from 2002 to 2015 are shown on **Figure 7**. From May of 2002 through September of 2013, PCE concentrations in monitoring well WR-384A exceeded the AWQS of 5 µg/l. From August of 2014 through August of 2015, PCE concentrations in monitoring well WR-384A were less than the AWQS of 5 µg/l. The PCE concentration in this well in the August 26, 2015 sampling event was 2.7 µg/l. A duplicate groundwater sample was collected by the COT-ES from well WR-384A on August 27, 2015 showed a PCE concentration of 2.9 µg/l. In the August 2015 sampling event, PCE was detected at concentrations below the AWQS in wells WR-445A, WR-447A, and WR-449A with concentrations ranging between 4.2 µg/l and 1.9 µg/l (**Figure 6**).

There was one exceedance for TCE in the groundwater monitoring well samples analyzed in the August 2015 sampling event. The TCE concentration in monitoring well WR-384A in the August 2015 sampling event was 8.4 µg/l, which is greater than the AWQS for TCE of 5 µg/l. The TCE concentrations in this well have been less than the AWQS from 2002 through 2013. However, the groundwater sample analyzed from this well in August of 2014 indicated a TCE concentration of 7.9 µg/l. A confirmatory groundwater sample obtained in March 2015 from well WR-384A showed a TCE concentration of 9.1 µg/l. A duplicate groundwater sample collected from well WR-384A on August 27, 2015 showed a TCE concentration of 9.3 µg/l. The COT-ES will continue to evaluate the TCE concentrations in well WR-384A. TCE was not detected in any of the remaining monitoring wells in the August 2015 sampling event.

Other VOCs, such as chloroform, total trihalomethanes and dichlorodifluoromethane were detected in several of the wells. All of these compounds were detected at concentrations below their respective AWQSSs (**Table 3** and **Appendix C**).

## Nitrate

Nitrate concentrations exceeded the AWQS of 10 mg/l in the following monitoring wells during the August 2015 sampling event:

- WR-445A at 14.5 mg/l
- WR-447A at 25.9 mg/l
- WR-449A at 22.9 mg/l

Nitrate concentrations in the groundwater are presented on **Figure 9** and nitrate concentrations are summarized on **Table 4**. In general, nitrate concentrations appear to be consistent or decreasing from previous sampling events. The horizontal extent of the AWQS exceedances for nitrate in the groundwater from 2011 through 2015 is shown on **Figure 9**. Between 2003 and 2009, the highest nitrate concentration was detected at WR-446A, which is directly south and upgradient of the landfill (**Figure 9** and **Figure 10**).

A statistical trend analysis for nitrate was performed using the GSI Mann-Kendall Tool Kit at monitoring wells that have shown nitrate concentrations above the AWQS of 10 mg/l. The trend analysis included nitrate data obtained since May of 2003 at shallow monitoring well WR-384A and deep monitoring wells WR-445A, WR-446A, WR-447A and WR-449A. As shown on **Figure 11**, the results indicated no trend for well WR-384A and decreasing nitrate concentration trend for the other monitoring wells. There may be an offsite source<sup>4</sup>, as nitrate is typically not a landfill contaminant and because the highest concentrations have been historically detected to the south (upgradient) of the landfill. Therefore, the COT-ES does not consider nitrate to be a constituent of concern at this site.

## Other Inorganic Compounds

Trend charts for selected inorganic compounds analyzed at the Tumamoc Landfill are provided in **Appendix D**. During the August 2015 monitoring event, monitoring well WR-448B exceeded the arsenic AWQS of 0.05 mg/l with a concentration of 0.109 mg/l. Well WR-448B had elevated concentrations of the following compounds which do not have an associated AWQS:

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<sup>4</sup> Petersen, Nancy, Deputy Director of Environmental Services, Memo to Tumamoc Landfill Files, *RE: Tumamoc Landfill – Groundwater and Landfill Gas Monitoring Report for Second Half 2005 and First Half 2006*, July 10, 2006

sulfate, chloride, bromide, sodium, magnesium, iron, calcium, total dissolved solids and alkalinity. These concentrations are summarized on **Table 4** and laboratory reports are provided in **Appendix D**. The groundwater sample obtained from well WR-448B was noted as turbid water with a turbidity value greater than 100 Nephelometric Turbidity Units (NTU). Monitor well WR-384A, which is located immediately downgradient of the landfill, did not exhibit these same conditions and had an arsenic concentration of 0.021 mg/l. The elevated inorganic compounds in well WR-448B are likely naturally occurring and are related to suspended solids present in the well.

### **2.2.1      *Quality Assurance/Quality Control***

Quality assurance/quality control (QA/QC) analyses for the August 2015 sampling event included one duplicate sample and two trip blank samples. Analytical results for QA/QC samples are presented in the laboratory report in **Appendix C**.

No analytes were detected in any of the trip blank samples. All duplicate sample analyses were within 30% relative percent difference (RPD) of the original sample analyses, except for the following:

- Manganese: 52.7 % RPD, 2.11 mg/l in the original sample and 1.23 mg/l in the duplicate sample
- Iron: 33.5% RPD, 4.74 mg/l in the original sample and 3.38 mg/l in the duplicate sample

A table listing the RPD for original and duplicate samples is provided in **Appendix C** with the laboratory reports. The field sampling sheet provided in **Appendix B** documents that no issues were encountered during sample collection. Both the original and duplicate samples were collected from a single bailer sample, no color or other visual appearances of the water were noted and turbidity was 28 NTUs. All other constituent RPDs were within 30%.

The laboratory percent recoveries for surrogates, matrix spikes and controls were within laboratory quality assurance objectives for accuracy, except for the data qualifiers listed in the case narratives presented in **Appendix C**. All percent recoveries were within acceptable quality standards and would not likely affect data results.

## **3.0      METHANE GAS MONITORING**

Landfill gas probes TU-1, TU-2, TU-3, TU-4, TU-5, TU-6, TU-7, TU-8, and TU-9 were monitored for CH<sub>4</sub>, CO<sub>2</sub>, and O<sub>2</sub> on a quarterly basis during the months of January, April, July, and October in 2015. These landfill gas probes are located around the perimeter of the Tumamoc Landfill. Methane was not detected in any probes during this monitoring period. **Figure 2**

provides the location of the gas probes and **Appendix E** provides the results for each monitoring event.

#### 4.0 ANNUAL LANDFILL INSPECTION

On September 29, 2015, EEC performed the annual field inspection required by the COT-ES for non-regulated closed landfills. The non-regulated closed landfills are inspected under a COT-ES policy in accordance with regulations that are applicable to the regulated sites<sup>5</sup>. No major issues were identified by EEC during the September 2015 site inspection. A copy of EEC's November 2015 Inspection Report is provided in **Attachment F**.

#### 5.0 CONCLUSIONS

- The direction of groundwater flow in the shallow and deep portions of the aquifer at the Tumamoc Landfill is from southwest to northeast. Hydraulic gradients indicate that vertical flow between all shallow and deep well pairs is upward and the deep aquifer is under confined conditions. These data are consistent with previous monitoring events.
- COT-ES has monitored the depth to water using transducers in three monitoring wells from 2002 to 2014 to determine if precipitation and surface flow events increase the water table to saturate the bottom of refuse. However, considering the annual water level declining rates and the fact that saturation of the refuse has never been observed, the use of transducers was discontinued at the end of 2014.
- PCE and TCE concentrations are relatively stable in all wells except for monitor well WR-384A. TCE exceeded the AWQS in downgradient monitoring well WR-384A in the duplicate groundwater sample at 9.3 µg/l and PCE was detected in the duplicate groundwater sample at a concentration of 2.9 µg/l, which is less than the AWQS for this compound.
- Monitor well WR-448B exceeded the arsenic AWQS of 0.05 mg/l at 0.109 mg/L WR-448B had elevated concentrations of the following compounds which do not have an associated AWQS: sulfate, chloride, bromide, sodium, magnesium, iron, calcium, total dissolved solids, and alkalinity. The elevated inorganic compounds in WR-448B are likely naturally-occurring and related to suspended solids present in the well.

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<sup>5</sup> COT-ES Closed Landfills Inspection and Maintenance Reporting and Procedures, March 2011

- Nitrate concentrations exceeded the AWQS (10 mg/l) at the deep monitoring wells WR-445A, WR-447A and WR-449A with the highest detect to the south (upgradient) of the landfill (**Figure 9**). Nitrate is not considered a constituent of concern for the site.
- EEC performed an annual field inspection required for the non-regulated closed landfills. No major issues were identified during the inspection in November of 2015.
- The next annual round of groundwater monitoring is scheduled for August 2016.
- Landfill gas monitoring will continue on a quarterly basis in 2016.

## **TABLES**

**Table 1**  
**Well Construction and Equipping Summary**  
**Tumamoc Landfill**

Well Name	ADWR Registration Number	Northing	Easting	Measuring Pt. Elev. ** (ft)	Total Depth (ft)	Screen Interval (ft.)	Screen Designation	Casing Dia. (in.)	Casing Material	Well Completion	Equipped w/ Transducer?
WR-384A	55-588649	441430.80	979168.46	2443.28	100	45-100	Shallow	5	Sch 80 PVC	3/28/02	***Yes
WR-385A	55-588651	441912.36	978480.97	2437.55	211	140-210	Deep	5	Sch 80 PVC	4/12/02	No
WR-385B*	55-592004	441925.45	978475.23	2437.27	85	25-85	Shallow	5	Sch 80 PVC	4/12/02	No
WR-386A	55-588650	440694.59	978488.84	2450.55	55	28-54	Shallow	5	Sch 80 PVC	4/2/02	***Yes
WR-445A	55-593924	440268.08	979268.48	2486.01	160	44-160	Long	5	Sch 80 PVC	4/9/03	***Yes
WR-446A	55-593925	440070.30	978831.59	2473.82	200	40-199	Long	5	Sch 80 PVC	8/1/03	No
WR-447A	55-593926	440364.81	979904.55	2475.01	198	40-198	Long	5	Sch 80 PVC	7/28/03	No
WR-448A	55-593921	442189.96	979007.19	2431.39	230	110-230	Deep	5	Sch 80 PVC	4/15/03	No
WR-448B	55-593922	442171.51	979001.79	2431.80	95	36-92	Shallow	5	Sch 80 PVC	4/15/03	No
WR-449A	55-593923	440835.13	979447.74	2473.33	200	40-200	Long	5	Sch 80 PVC	4/10/03	No
WR-454A	55-204074	440035.17	977328.65	2469.85	240	140-240	Deep	5	Sch 80 PVC	8/13/04	No
WR-454B	55-204075	440030.43	977317.35	2469.76	105	20-100	Shallow	5	Sch 80 PVC	8/17/04	No
WR-455A	55-204076	439011.59	977176.55	2485.60	240	120-240	Deep	5	Sch 80 PVC	8/25/04	No
WR-455B	55-204077	439031.78	977181.90	2485.81	100	30-100	Shallow	5	Sch 80 PVC	8/27/04	No

#### LANDFILL GAS MONITORING PROBES

Probe Name	ADWR Registration Number	Northing	Easting	Probe Depths (ft.)	Well Owner
TU-1	NA	440060.00	978410.00	10, 25	COT
TU-2	NA	440053.00	978605.00	10, 25	COT
TU-3	NA	440055.00	978795.00	10, 30	COT
TU-4	NA	440067.00	979013.00	10, 30	COT
TU-5	NA	440073.00	979248.00	10, 35	COT
TU-6	NA	440091.00	979403.00	10, 35	COT
TU-7	NA	440119.00	979602.00	10, 35	COT
TU-8	NA	440138.00	979939.00	10, 25	COT
TU-9	NA	441244.00	977209.00	10, 25	COT

\*WR-358B was rebuilt in the same borehole 3/03 due to a broken bottom cap during the original well installation in 4/02.

\*\* Northing, easting, and elevation is measuring point elevation which is the top of casing notch on the north side.

\*\*\* the use of transducers was discontinued at the end of 2014.

**Table 2**  
**Water Table Elevations**  
**Tumamoc Landfill**

Well	Screen Designation	Date	2015 DTW (ft)	Measuring Point Elevation (ft. a.m.s.l.)	2015 WTE (ft a.m.s.l.)
WR-384A	shallow	8/26/2015	55.15	2443.28	2388.13
WR-385A	deep	8/26/2015	45.39	2437.55	2392.16
WR-385B	shallow	8/26/2015	46.85	2437.27	2390.42
WR-386A	shallow	8/26/2015	Dry	2450.55	NA
WR-445A	long	8/26/2015	57.86	2486.01	2428.15
WR-446A	long	8/26/2015	45.13	2473.82	2428.69
WR-447A	long	8/26/2015	47.28	2475.01	2427.73
WR-448A	deep	8/26/2015	58.95	2431.39	2372.44
WR-448B	shallow	8/26/2015	67.32	2431.80	2364.48
WR-449A	long	8/26/2015	60.07	2473.33	2413.26
WR-454A	deep	8/26/2015	0.35	2469.85	2469.50
WR-454B	shallow	8/26/2015	13.52	2469.76	2456.24
WR-455A	deep	8/26/2015	23.07	2485.60	2462.53
WR-455B	shallow	8/26/2015	24.35	2485.81	2461.46

Notes:

ft = feet

ft amsl = feet above mean sea level

DTW = depth to water.

Measuring Point Elevation = a chiselled notch on top of casing. In NAVD 88, feet above mean sea level.

WTE = water table elevation

NA = Not Applicable

Table 3  
Selected VOCs (ug/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well Name	Note	Date	DecDate	Analytes (ug/L)				
				PCE	TCE	cis -1,2-DCE	Vinyl Chloride	Dichlorodifluoromethane
WR-384A		5/9/2002	2002.353	31.0	2.5	2.9	<0.50	1.0
WR-384A	DL	5/9/2002	2002.353	31.0	2.3	2.9	<0.50	2.3
WR-384A		7/25/2002	2002.567	21.0	1.9	3.0	<0.50	<2.0
WR-384A		10/8/2002	2002.773	40.0	3.3	4.1	<0.50	<2.0
WR-384A		2/11/2003	2003.115	31.0	2.7	3.1	<0.50	<2.0
WR-384A		5/20/2003	2003.384	25.0	2.4	3.0	<0.50	<2.0
WR-384A		8/11/2003	2003.611	23.0	2.0	1.8	<0.50	<2.0
WR-384A		10/7/2003	2003.770	19.0	1.7	1.5	<0.50	<2.0
WR-384A		2/10/2004	2004.112	24.0	2.0	2.3	<0.50	<2.0
WR-384A		8/17/2004	2004.636	27.0	2.4	2.5	<0.50	<2.0
WR-384A		2/8/2005	2005.104	18.0	1.5	1.5	<0.50	<2.0
WR-384A		8/16/2005	2005.622	20.0	1.6	1.7	<0.50	<2.0
WR-384A		2/14/2006	2006.121	8.4	<0.05	<0.50	<0.50	<2.0
WR-384A		8/29/2006	2006.658	6.3	0.5	<0.50	<0.50	<2.0
WR-384A		2/6/2007	2007.099	11.0	1.0	0.6	<0.50	<2.0
WR-384A		8/15/2007	2007.619	4.8	<0.50	<0.50	<0.50	<2.0
WR-384A		8/13/2008	2008.615	3.4	<0.50	<0.50	<0.50	<0.50
WR-384A	B	9/23/2009	2009.726	5.9	<0.50	<0.50	<0.50	<0.50
WR-384A	B	8/9/2010	2010.603	4.4	<0.50	<0.50	<0.50	<0.50
WR-384A	B	8/17/2011	2011.625	5.3	<0.50	<0.50	<0.50	<0.50
WR-384A	B, DL	8/17/2011	2011.625	5.4	0.5	<0.50	<0.50	<0.50
WR-384A	B	8/16/2012	2012.623	6.8	0.9	<0.50	<0.50	<0.50
WR-384A	B	9/18/2013	2013.712	9.4	1.6	<0.50	<0.50	<0.50
WR-384A	B,D	9/18/2013	2013.712	9.5	1.7	<0.50	<0.50	<0.50
WR-384A	B	8/27/2014	2014.652	<0.50	7.8	<0.50	<0.50	<0.50
WR-384A	B,D	8/27/2014	2014.652	<0.50	7.9	<0.50	<0.50	<0.50
WR-384A	B	3/9/2015	2015.184	<0.50	9.1	<1	<1	<1
WR-384A	B	8/26/2015	2015.649	2.7	8.4	<0.50	<0.50	<0.50
WR-384A	B,D	8/27/2015	2015.652	2.9	9.3	<0.50	<0.50	<0.50
WR-385A		5/9/2002	2002.353	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	DL	5/9/2002	2002.353	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A		7/25/2002	2002.567	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		10/8/2002	2002.773	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		2/11/2003	2003.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		5/23/2003	2003.386	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		8/14/2003	2003.614	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		2/11/2004	2004.113	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		8/18/2004	2004.630	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		2/7/2005	2005.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		8/8/2005	2005.600	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A	D	8/8/2005	2005.600	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		2/9/2006	2006.107	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A	D	2/9/2006	2006.107	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		9/5/2006	2006.677	<0.5	<0.50	<0.50	<0.50	<2.0
WR-385A	D	9/5/2006	2006.677	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		2/12/2007	2007.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		8/22/2007	2007.638	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385A		8/11/2008	2008.609	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A		9/24/2009	2009.729	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	8/9/2010	2010.603	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B,D	8/9/2010	2010.603	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	8/17/2011	2011.625	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	8/16/2012	2012.623	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	9/18/2013	2013.712	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	8/27/2014	2014.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385A	B	8/26/2015	2015.649	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B		5/9/2002	2002.353	1.0	1.8	0.8	<0.50	<0.50
WR-385B	DL	5/9/2002	2002.353	1.0	1.8	0.8	<0.50	<0.50
WR-385B		7/25/2002	2002.567	0.7	0.8	<0.50	<0.50	<2.0
WR-385B		10/8/2002	2002.773	2.6	3.0	1.2	<0.50	<2.0
WR-385B		2/11/2003	2003.115	3.4	4.7	2.1	<0.50	<2.0
WR-385B		5/20/2003	2003.384	0.5	0.7	<0.50	<0.50	<2.0
WR-385B		8/13/2003	2003.613	<0.50	0.7	<0.50	<0.50	<2.0

Table 3  
Selected VOCs (ug/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well Name	Note	Date	DecDate	Analytes (ug/L)				
				PCE	TCE	cis -1,2-DCE	Vinyl Chloride	Dichlorodifluoromethane
WR-385B		2/10/2004	2004.112	0.7	1.0	<0.50	<0.50	<2.0
WR-385B		8/17/2004	2004.636	0.6	0.7	<0.50	<0.50	<2.0
WR-385B		2/8/2005	2005.104	0.6	0.7	<0.50	<0.50	<2.0
WR-385B		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385B		2/14/2006	2006.121	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385B		8/29/2006	2006.658	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385B		2/6/2007	2007.09863	<0.50	<0.50	<0.50	<0.50	<2.0
WR-385B		8/15/2007	2007.619178	0.7	0.5	<0.50	<0.50	<2.0
WR-385B		8/13/2008	2008.614754	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	9/23/2009	2009.726027	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B, D	9/23/2009	2009.726027	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	8/9/2010	2010.60274	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	8/17/2011	2011.624658	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	8/16/2012	2012.622951	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	9/18/2013	2013.712329	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	8/27/2014	2014.652055	<0.50	<0.50	<0.50	<0.50	<0.50
WR-385B	B	8/26/2015	2015.649	<0.50	<0.50	<0.50	<0.50	<0.50
WR-386A		5/9/2002	2002.353	0.5	<0.50	<0.50	<0.50	<0.50
WR-386A	DL	5/9/2002	2002.353	<0.50	<0.50	<0.50	<0.50	<0.50
WR-386A		7/25/2002	2002.567	0.5	<0.50	<0.50	<0.50	<2.0
WR-386A		10/8/2002	2002.773	0.6	<0.50	<0.50	<0.50	<2.0
WR-386A		2/11/2003	2003.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		5/22/2003	2003.385	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/13/2003	2003.613	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		2/11/2004	2004.113	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/19/2004	2004.633	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		2/10/2005	2005.110	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		2/9/2006	2006.107	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/31/2006	2006.663	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		2/8/2007	2007.104	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/21/2007	2007.636	<0.50	<0.50	<0.50	<0.50	<2.0
WR-386A		8/7/2008	2008.598	<0.50	<0.50	<0.50	<0.50	<0.50
WR-386A	B	10/22/2009	2009.805	1.5	<0.50	<0.50	<0.50	<0.50
WR-386A	B	8/9/2010	2010.603	1.1	<0.50	<0.50	<0.50	<0.50
WR-386A	B	8/17/2011	2011.625	1.2	<0.50	<0.50	<0.50	<0.50
WR-386A	B	8/16/2012	2012.623	1.3	<0.50	<0.50	<0.50	<0.50
WR-386A	B	9/18/2013	2013.712	1.3	<0.50	<0.50	<0.50	<0.50

WR-445A		4/9/2003*	2003.271	8.7	1.3	0.8	<0.50	3.2
WR-445A		5/21/2003	2003.385	9.9	1.5	1.0	<0.50	4.0
WR-445A		8/12/2003	2003.612	11.0	1.5	0.8	<0.50	4.4
WR-445A		10/8/2003	2003.771	11.0	1.4	0.7	<0.50	5.1
WR-445A		2/11/2004	2004.113	9.5	1.6	1.0	<0.50	3.4
WR-445A		8/19/2004	2004.633	7.4	1.3	0.9	<0.50	<2.0
WR-445A		2/10/2005	2005.110	8.5	1.5	1.1	<0.50	3.0
WR-445A		8/15/2005	2005.619	8.6	1.1	0.7	<0.50	2.6
WR-445A	D	8/15/2005	2005.619	8.2	1.1	0.7	<0.50	2.6
WR-445A		2/14/2006	2006.121	8.4	1.2	0.8	<0.50	3.0
WR-445A	D	2/15/2006	2006.121	8.5	1.2	0.8	<0.50	2.9
WR-445A		9/6/2006	2006.679	6.9	1.1	0.8	<0.50	2.0
WR-445A		2/13/2007	2007.118	8.7	1.3	0.7	<0.50	2.1
WR-445A		8/23/2007	2007.641	7.9	1.2	0.6	<0.50	<2.0
WR-445A		8/14/2008	2008.617	9.4	1.4	0.8	<0.50	2.7
WR-445A		9/28/2009	2009.740	8.3	1.4	0.8	<0.50	2.7
WR-445A	B	8/9/2010	2010.603	3.1	<0.5	<0.5	<0.5	<0.5
WR-445A	B	8/17/2011	2011.625	3.5	<0.5	<0.5	<0.5	<0.5
WR-445A	B	8/15/2012	2012.620	3.4	<0.5	<0.5	<0.5	0.5
WR-445A	B	9/18/2013	2013.712	4.2	<0.5	<0.5	<0.5	0.7
WR-445A	B	8/27/2014	2014.652	4.1	<0.5	<0.5	<0.5	0.5
WR-445A	B	8/26/2015	2015.649	3.1	<0.50	<0.50	<0.50	<0.50
WR-446A		8/13/2003	2003.613	1.0	<0.50	<0.50	<0.50	<2.0

Table 3  
Selected VOCs (ug/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well Name	Note	Date	DecDate	Analytes (ug/L)				
				PCE	TCE	cis -1,2-DCE	Vinyl Chloride	Dichlorodifluoromethane
WR-446A		10/6/2003	2003.769	0.8	<0.50	<0.50	<0.50	<2.0
WR-446A		2/12/2004	2004.114	0.6	<0.50	<0.50	<0.50	<2.0
WR-446A		5/17/2004	2004.375	0.6	<0.50	<0.50	<0.50	<2.0
WR-446A		8/16/2004	2004.625	0.6	<0.50	<0.50	<0.50	<2.0
WR-446A		2/7/2005	2005.101	0.7	<0.50	<0.50	<0.50	<2.0
WR-446A		8/8/2005	2005.600	0.6	<0.50	<0.50	<0.50	<2.0
WR-446A		2/13/2006	2006.118	0.5	<0.50	<0.50	<0.50	<2.0
WR-446A	D	2/13/2006	2006.118	0.5	<0.50	<0.50	<0.50	<2.0
WR-446A		9/5/2006	2006.677	<0.50	<0.50	<0.50	<0.50	<2.0
WR-446A		2/12/2007	2007.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-446A		8/22/2007	2007.638	<0.50	<0.50	<0.50	<0.50	<2.0
WR-446A	D	8/22/2007	2007.638	<0.50	<0.50	<0.50	<0.50	<2.0
WR-446A		8/11/2008	2008.609	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A		9/24/2009	2009.729	0.5	<0.50	<0.50	<0.50	<0.50
WR-446A	B	8/10/2010	2010.605	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A	B	8/18/2011	2011.627	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A	B	8/15/2012	2012.620	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A	B	9/18/2013	2013.712	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A	B	8/27/2014	2014.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-446A	B	8/26/2015	2015.649	<0.50	<0.50	<0.50	<0.50	<0.50
WR-447A		8/13/2003	2003.613	1.4	<0.50	<0.50	<0.50	<2.0
WR-447A		10/6/2003	2003.769	1.8	<0.50	<0.50	<0.50	<2.0
WR-447A		2/12/2004	2004.114	1.7	<0.50	<0.50	<0.50	<2.0
WR-447A		5/17/2004	2004.375	1.8	<0.50	<0.50	<0.50	<2.0
WR-447A		8/16/2004	2004.625	1.5	<0.50	<0.50	<0.50	<2.0
WR-447A		2/9/2005	2005.107	1.6	<0.50	<0.50	<0.50	<2.0
WR-447A		8/8/2005	2005.600	1.7	<0.50	<0.50	<0.50	<2.0
WR-447A		2/13/2006	2006.118	1.6	<0.50	<0.50	<0.50	<2.0
WR-447A		9/6/2006	2006.679	1.6	<0.50	<0.50	<0.50	<2.0
WR-447A		2/13/2007	2007.118	1.9	<0.50	<0.50	<0.50	<2.0
WR-447A		8/23/2007	2007.641	2.0	<0.50	<0.50	<0.50	<2.0
WR-447A		8/14/2008	2008.617	1.9	<0.50	<0.50	<0.50	0.5
WR-447A		9/28/2009	2009.740	2.0	<0.50	<0.50	<0.50	0.8
WR-447A		9/28/2009	2009.740	1.9	<0.50	<0.50	<0.50	0.8
WR-447A	B	8/10/2010	2010.605	1.9	<0.50	<0.50	<0.50	0.6
WR-447A	B	8/18/2011	2011.627	1.8	<0.50	<0.50	<0.50	0.6
WR-447A	B	8/15/2012	2012.620	1.9	<0.50	<0.50	<0.50	0.5
WR-447A	B	9/17/2013	2013.710	1.7	<0.50	<0.50	<0.50	0.6
WR-447A	B	8/27/2014	2014.652	1.9	<0.50	<0.50	<0.50	0.5
WR-447A	B	8/26/2015	2015.649	1.9	<0.50	<0.50	<0.50	0.5
WR-448A		4/21/2003*	2003.304	0.7	<0.50	<0.50	<0.50	<2.0
WR-448A		5/21/2003	2003.385	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		8/12/2003	2003.612	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		10/6/2003	2003.769	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		2/10/2004	2004.112	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		8/16/2004	2004.625	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		2/7/2005	2005.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		8/11/2005	2005.608	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A	D	8/11/2005	2005.608	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		2/9/2006	2006.107	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		9/5/2006	2006.677	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		2/12/2007	2007.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		2/12/2007	2007.115	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		8/22/2007	2007.638	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448A		8/11/2008	2008.609	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A		9/24/2009	2009.729	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	8/11/2010	2010.608	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	2/1/2011	2011.085	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	8/17/2011	2011.625	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	8/16/2012	2012.623	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	9/17/2013	2013.710	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	8/28/2014	2014.655	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448A	B	8/27/2015	2015.652	<0.50	<0.50	<0.50	<0.50	<0.50

Table 3  
Selected VOCs (ug/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well Name	Note	Date	DecDate	Analytes (ug/L)				
				PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Dichlorodifluoromethane
WR-448B		4/21/2003*	2003.304	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		5/20/2003	2003.384	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/11/2003	2003.611	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		10/8/2003	2003.771	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		2/10/2004	2004.112	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/17/2004	2004.636	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		2/8/2005	2005.104	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		2/14/2006	2006.121	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/29/2006	2006.658	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B	D	8/29/2006	2006.658	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		2/6/2007	2007.099	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/15/2007	2007.619	<0.50	<0.50	<0.50	<0.50	<2.0
WR-448B		8/13/2008	2008.615	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	9/23/2009	2009.726	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	3/30/2011	2011.241	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	8/18/2011	2011.627	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	8/16/2012	2012.623	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	9/17/2013	2013.710	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	8/27/2014	2014.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-448B	B	8/27/2015	2015.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-449A		4/10/2003*	2003.274	4.3	0.54	<0.50	<0.50	<2.0
WR-449A		5/21/2003	2003.385	3.5	<0.50	<0.50	<0.50	<2.0
WR-449A		8/12/2003	2003.612	4.3	<0.50	<0.50	<0.50	<2.0
WR-449A		10/7/2003	2003.770	5.0	0.50	<0.50	<0.50	<2.0
WR-449A		2/11/2004	2004.113	4.8	0.54	<0.50	<0.50	<2.0
WR-449A		8/18/2004	2004.630	4.4	0.51	<0.50	<0.50	<2.0
WR-449A		2/9/2005	2005.107	4.6	0.60	<0.50	<0.50	<2.0
WR-449A		8/11/2005	2005.608	4.9	0.50	<0.50	<0.50	<2.0
WR-449A		2/13/2006	2006.118	4.3	<0.50	<0.50	<0.50	<2.0
WR-449A		9/6/2006	2006.679	4.0	<0.50	<0.50	<0.50	<2.0
WR-449A		2/13/2007	2007.118	4.4	<0.50	<0.50	<0.50	<2.0
WR-449A		8/23/2007	2007.641	3.8	<0.50	<0.50	<0.50	<2.0
WR-449A		8/14/2008	2008.617	4.9	0.50	<0.50	<0.50	0.9
WR-449A		9/28/2009	2009.740	4.2	<0.50	<0.50	<0.50	0.8
WR-449A	HS-60'	11/23/2009	2009.893	5.1	0.59	NA	NA	NA
WR-449A	HS-97'	11/23/2009	2009.893	5.2	0.60	NA	NA	NA
WR-449A	HS-186'	11/23/2009	2009.893	4.8	0.52	NA	NA	NA
WR-449A	B	8/11/2010	2010.608	5.0	0.50	<0.50	<0.50	1.7
WR-449A	B	8/17/2011	2011.625	4.5	<0.50	<0.50	<0.50	1.8
WR-449A	B	8/16/2012	2012.623	4.2	<0.50	<0.50	<0.50	1.1
WR-449A	B	9/17/2013	2013.710	4.1	0.5	<0.50	<0.50	1.3
WR-449A	B	8/28/2014	2014.655	4.6	<0.50	<0.50	<0.50	1.3
WR-449A	B	8/27/2015	2015.652	4.2	<0.50	<0.50	<0.50	1.2
WR-454A		10/13/2004	2004.781	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		2/14/2005	2005.121	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		8/15/2005	2005.619	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		2/7/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		8/28/2006	2006.655	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		2/5/2007	2007.096	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		2/5/2007	2007.096	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		8/15/2007	2007.619	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A	D	8/15/2007	2007.619	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454A		8/12/2008	2008.612	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A		9/29/2009	2009.742	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	8/9/2010	2010.603	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	8/18/2011	2011.627	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	8/15/2012	2012.620	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	9/18/2013	2013.712	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	8/28/2014	2014.655	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454A	B	8/27/2015	2015.652	<0.50	<0.50	<0.50	<0.50	<0.50

Table 3  
Selected VOCs (ug/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well Name	Note	Date	DecDate	Analytes (ug/L)				
				PCE	TCE	cis -1,2-DCE	Vinyl Chloride	Dichlorodifluoromethane
WR-454B		10/11/2004	2004.776	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		2/15/2005	2005.123	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B	D	8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		2/7/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		8/31/2006	2006.663	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		2/8/2007	2007.104	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		8/20/2007	2007.633	<0.50	<0.50	<0.50	<0.50	<2.0
WR-454B		8/7/2008	2008.598	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	9/23/2009	2009.726	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/10/2010	2010.605	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/18/2011	2011.627	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/15/2012	2012.620	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/15/2012	2012.620	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	9/17/2013	2013.710	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/28/2014	2014.655	<0.50	<0.50	<0.50	<0.50	<0.50
WR-454B	B	8/27/2015	2015.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A		10/12/2004	2004.779	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		2/15/2005	2005.123	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		2/7/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A	D	2/7/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		8/31/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		2/8/2007	2007.104	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		8/20/2007	2007.633	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455A		8/7/2008	2008.598	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	9/23/2009	2009.726	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	8/10/2010	2010.605	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	8/18/2011	2011.627	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	8/15/2012	2012.620	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	9/17/2013	2013.710	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	8/28/2014	2014.655	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455A	B	8/27/2015	2015.652	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B		10/11/2004	2004.776	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		2/15/2005	2005.123	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		8/16/2005	2005.622	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		2/7/2006	2006.101	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		8/31/2006	2006.663	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		2/8/2007	2007.104	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		8/21/2007	2007.636	<0.50	<0.50	<0.50	<0.50	<2.0
WR-455B		8/7/2008	2008.598	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B		8/7/2008	2008.598	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	9/23/2009	2009.726	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	8/10/2010	2010.605	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	8/18/2011	2011.627397	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	8/15/2012	2012.620219	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	9/17/2013	2013.709589	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	8/28/2014	2014.654795	<0.50	<0.50	<0.50	<0.50	<0.50
WR-455B	B	8/27/2015	2015.652055	<0.50	<0.50	<0.50	<0.50	<0.50
AWQS				5.0	5.0	70.0	2.0	none

D = duplicate sample; DL = duplicate sample sent to different lab.

B = no purge, bailed sample.

\* Sample collected during well development.

**BOLD and yellow highlighted values are above the aquifer water quality standard.**

HS = Hydrasleeve discrete depth samples with depth in feet below ground surface following well name.

Table 4  
Selected Inorganics (mg/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
Seep		8/8/2002	2002.353	44	85	9.8	3.0	2.4	<0.020	170	0.55	58	65	NA	<0.050	150	390	33	<1.0	0.5	<0.010	0.29	0.0080	<0.0030
WR-384A		5/9/2002	2002.353	117	1950	83.0	7.4	NA	NA	554	NA	NA	NA	0.22	NA	636	5440	939	2.8	19.0	NA	9.5	NA	NA
WR-384A	DL	5/9/2002	2002.353	130	2000	92.0	22.0	7.3	0.52	570	0.54	400	NA	0.37	2.1	710	5300	510	<25	40.0	<0.010	22	0.023	0.031
WR-384A		7/25/2002	2002.567	100	1600	81.0	11.0	8.0	<0.020	590	0.56	340	NA	0.087	0.066	590	5600	44	12.0	0.5	<0.010	0.26	0.015	<0.0030
WR-384A		10/8/2002	2002.773	110	1800	81.0	11.0	9.1	<0.020	560	<0.50	320	2600	0.083	0.061	610	5600	11	7.2	0.4	<0.010	NA	0.01	<0.0030
WR-384A		2/11/2003	2003.115	120	1900	86.0	11.0	8.1	<0.020	540	<2.5	350	2700	20	0.051	650	5700	26	6.0	0.7	<0.010	0.43	0.011	<0.0030
WR-384A		5/20/2003	2003.384	120	2000	82.0	11.0	8.2	<0.020	530	<2.5	380	2800	23	0.057	630	5900	40	5.3	0.1	<0.010	<0.10	0.0089	<0.0030
WR-384A		8/11/2003	2003.611	120	1600	81.0	11.0	8.1	<0.020	490	<0.50	390	2800	NA	<0.050	620	6100	26	4.8	0.3	<0.010	0.13	0.0057	0.0038
WR-384A		10/7/2003	2003.770	120	1800	87.0	11.0	8.4	<0.020	510	<0.50	440	2800	21	0.059	660	6100	26	4.2	0.6	<0.010	0.37	0.01	<0.0030
WR-384A		2/10/2004	2004.112	130	1700	92.0	13.0	8.1	<0.0020	490	<0.50	410	2800	7.3	0.0064	710	6100	53	3.2	0.5	<0.010	0.19	0.0092	0.006
WR-384A		8/17/2004	2004.636	150	2000	120.0	12.0	8.4	0.0074	480	0.70	380	3400	24	<0.050	860	6800	78	3.4	0.7	<0.010	0.27	0.0079	<0.0030
WR-384A		2/8/2005	2005.104	170	2100	120.0	15.0	7.5	0.0065	470	<0.50	490	3300	25	<0.050	<1000	6900	25	3.6	0.3	<0.010	<0.10	0.008	<0.0030
WR-384A		8/16/2005	2005.622	190	2200	130.0	14.0	9.4	0.026	460	<1.0	630	3900	24	0.16	1000	7600	<10	3.4	0.2	<0.010	<0.10	<0.010	<0.0030
WR-384A		2/14/2006	2006.121	170	1900	110.0	15.0	12.0	<0.020	430	<1.0	780	2600	17	0.054	870	5900	<10	1.8	0.4	<0.010	<0.10	0.005	<0.0100
WR-384A		8/29/2006	2006.658	NA	NA	NA	NA	16.0	<0.020	NA	0.67	740	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-384A		2/6/2007	2007.099	83	1200	50.0	7.9	13.0	<0.020	410	0.69	670	2000	13	0.17	410	11000	<10	<1.0	0.2	<0.010	<0.10	0.0165	<0.004
WR-384A		8/15/2007	2007.619	NA	NA	NA	NA	15.0	0.018	NA	1.00	770	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-384A		8/13/2008	2008.615	NA	NA	NA	NA	14.0	<0.1	NA	0.73	589	1080	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-384A	B	9/23/2009	2009.726	NA	NA	NA	NA	25.0	<10	NA	1.30	1440	1850	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-384A	B	8/9/2010	2010.603	147	2610	110	5.8	19.0	<0.25	638	1.00	1720	2600	20	NA	NA	7680	NA	1.24	NA	NA	0.038	0.0059	<0.002
WR-384A	B	8/17/2011	2011.625	109	1960	72	4	12.0	<1.0	523	1.90	1290	1980	15	NA	NA	5850	NA	0.99	NA	NA	2.5	0.012	0.042
WR-384A	B,DL	8/17/2011	2011.625	118	1830	75.4	6.94	10.5	<0.02	490	<0.5	590	916	13.1	NA	NA	4540	NA	<0.5	NA	NA	4.39	0.0161	0.0249
WR-384A	B	8/16/2012	2012.623	349	2210	135	5.5	<0.25	<1	1460	15.00	<5	3200	8.6	NA	NA	7110	NA	98	NA	NA	2.6	0.14	<0.005
WR-384A	B	9/18/2013	2013.712	65	1180	34	3	<0.25	<.1	535	1.60	575	1170	6.8	NA	NA	3490	NA	1.71	NA	NA	2.5	0.027	<0.002
WR-384A	B,D	9/18/2013	2013.712	65	1190	34	3	<0.25	<.1	548	1.60	579	1180	7.2	NA	NA	3500	NA	1.77	NA	NA	3.1	0.034	<0.002
WR-384A	B	8/27/2014	2014.652	66.4	1260	39.3	4.83	<0.25	<.1	585	1.52	568	1300	8.44	NA	NA	3660	NA	1.63	NA	NA	1.07	0.0176	<0.002
WR-384A	B,D	8/27/2014	2014.652	66.7	1270	39.2	3.06	<0.25	<.1	595	1.53	570	1300	8.47	NA	NA	3780	NA	1.31	NA	NA	1.24	0.0178	<0.002
WR-384A	B	9/1/2015	2015.666	69.6	1290	40.9	4.27	<0.25	<0.1	557	1.42	615	1460	9.36	NA	NA	3980	NA	1.23	NA	NA	4.74	0.0267	<0.002
WR-384A	B	9/1/2015	2015.666	70.5	1290	41.3	4.27	<0.25	<0.1	579	1.41	609	1460	9.14	NA	NA	3890	NA	1.53	NA	NA	3.38	0.0201	<0.002
WR-385A		5/9/2002	2002.353	82	548	12.0	5.3	NA	NA	144	NA	NA	0.33	NA	254	1660	592	6.5	15.0	NA	13	NA	NA	
WR-385A	DL	5/9/2002	2002.353	45	430	7.3	8.5	2.4	0.4	89	1.20	440	NA	0.18	0.56	140	1600	390	7.7	7.2	<0.010	6.1	0.012	0.014
WR-385A		7/25/2002	2002.567	24	430	5.1	3.9	2.8	0.16	150	0.92	600	NA	0.047	<0.050	81	1600</td							

Table 4  
Selected Inorganics (mg/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
WR-385A	B	8/27/2014	2014.652	33.4	629	6.62	2.15	1.6	<0.1	89.9	0.82	511	537	4.43	NA	NA	1840	NA	<0.25	NA	NA	<0.1	0.00841	0.00157
WR-385A	B	9/1/2015	2015.666	33.7	605	6.3	2.65	1.57	<0.1	92.9	0.812	546	577	4.5	NA	NA	1800	NA	0.42	NA	NA	0.0352	0.00839	<0.001
WR-385B		5/9/2002	2002.353	66	482	<0.5	6.0	NA	NA	439	NA	NA	NA	0.11	NA	NA	1340	110	2.7	1.6	0.062	0.35	0.0062	0.0022
WR-385B	DL	5/9/2002	2002.353	77	440	<1.0	9.7	2.5	0.083	<20	2.20	270	NA	0.11	0.086	190	1400	180	3.1	1.7	0.069	0.41	0.006	<0.0030
WR-385B		7/25/2002	2002.567	5.9	300	3.4	4.3	<0.50	0.29	130	3.30	260	NA	0.063	0.13	29	940	660	11.0	5.2	<0.010	4.4	0.056	0.0048
WR-385B		10/8/2002	2002.773	8.9	500	5.2	5.3	3.3	<0.020	310	1.80	260	280	0.064	0.16	44	1500	230	2.2	4.5	<0.010	NA	0.037	<0.0030
WR-385B		2/11/2003	2003.115	6.0	530	4.8	<2.0	4.8	<0.020	440	<0.5	220	430	2.6	0.11	35	1700	33	2.2	0.9	<0.010	0.44	0.033	<0.0030
WR-385B		5/20/2003	2003.381	6.5	470	4.1	3.8	1.3	0.046	440	3.00	340	120	0.92	<0.050	33	1200	40	1.1	1.6	<0.010	0.76	0.019	<0.0030
WR-385B		2/10/2004	2004.112	11	460	6.8	3.8	2.3	<0.020	540	1.80	320	160	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B		8/17/2004	2004.636	11	500	7.0	3.0	2.2	<0.020	530	1.80	350	190	1.6	0.069	56	1500	21	1.9	1.0	0.014	0.55	0.014	<0.0030
WR-385B		2/8/2005	2005.104	12	590	8.0	5.2	2.0	0.02	590	2.10	380	160	1.4	0.13	64	1600	44	1.7	1.8	<0.010	0.84	0.015	<0.0030
WR-385B		8/16/2005	2005.622	11	480	6.8	3.3	2.1	0.026	570	2.10	380	170	1.4	0.15	55	1500	20	<1.0	1.3	<0.010	0.49	0.015	0.0074
WR-385B		2/14/2006	2006.121	10	460	6.1	3.6	1.7	0.067	560	1.80	280	90	0.71	0.067	51	1300	24	<1.0	1.3	<0.010	0.67	0.0165	<0.0020
WR-385B		8/29/2006	2006.658	NA	NA	NA	NA	1.6	0.083	NA	1.90	250	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B		2/6/2007	2007.099	8.6	430	4.8	3.1	3.1	0.057	590	8.50	230	79	3.5	0.17	41	420	21	<1.0	1.8	<0.010	0.63	0.0162	<0.0020
WR-385B		8/15/2007	2007.619	NA	NA	NA	NA	1.9	<0.010	NA	2.10	330	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B		8/13/2008	2008.615	NA	NA	NA	NA	1.4	0.1	NA	1.80	246	64	0.52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B	B	9/23/2009	2009.726	NA	NA	NA	NA	1.6	<.1	NA	2.30	336	59	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B	B, D	9/23/2009	2009.726	NA	NA	NA	NA	1.6	<.1	NA	2.30	337	59	0.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-385B	B	8/9/2010	2010.603	9	568	6.4	1.1	1.6	<.1	706	2.30	363	60	0.53	NA	NA	1480	NA	0.96	NA	NA	<0.02	0.014	<0.002
WR-385B	B	8/17/2011	2011.625	9.7	487	6.7	1.2	1.6	<.1	696	2.20	371	54	0.47	NA	NA	1470	NA	0.64	NA	NA	<0.02	0.013	<0.002
WR-385B	B	8/16/2012	2012.623	8.7	532	5.9	1.1	1.5	<.1	685	2.20	350	49	0.44	NA	NA	1410	NA	0.7	NA	NA	<0.02	0.015	<0.001
WR-385B	B	9/18/2013	2013.712	8.6	534	6.2	1	1.5	<.1	687	2.30	338	42	0.35	NA	NA	1420	NA	0.53	NA	NA	<0.02	0.014	<0.001
WR-385B	B	8/27/2014	2014.652	11.3	522	6.51	1.14	1.5	<.1	728	2.26	293	37.2	0.355	NA	NA	1360	NA	0.66	NA	NA	0.552	0.0148	0.00136
WR-385B	B	9/1/2015	2015.666	8.8	506	5.6	1.35	1.3	<0.1	773	2.26	256	32.9	0.308	NA	NA	1310	NA	0.51	NA	NA	0.184	0.0146	<0.001
WR-386A		5/9/2002	2002.353	18	771	17.0	2.1	NA	NA	621	NA	NA	0.19	NA	115	2150	2.8	4.9	<0.1	<0.02	0.04	0.011	NA	
WR-386A	DL	5/9/2002	2002.353	21	680	18.0	4.4	4.0	0.079	610	2.70	78	NA	0.17	0.11	130	2200	<10	6.2	0.1	<0.010	<0.10	0.01	0.013
WR-386A		7/25/2002	2002.567	18	740	17.0	6.5	6.1	<0.020	780	3.60	120	NA	0.24	0.83	110	2400	850	21.0	8.2	0.01	5.7	0.042	0.008
WR-386A		10/8/2002	2002.773	15	800	13.0	5.0	5.2	<0.020	760	2.50	69	740	0.16	0.32	92	2400	310	3.5	6.7	<0.010	NA	0.03	0.0059
WR-386A		2/11/2003	2003.115	20	820	17.0	4.8	3.5	<0.020	670	2.80	95	1000	6.4	0.17	120	2500	86	3.3	2.3	<0.010	1.7	0.012	0.0062
WR-386A		5/22/2003	2003.385	22	820	18.0	4.1	5.9	<0.020	480	<2.5	81	830	19	0.073	130	2400	<10	3.4	0.4	<0.010	1.1	0.0069	0.013
WR-386A		2/11/2004	2004.113	22	820	18.0	5.2	3.6	<0.020	610	2.00	85	970	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-386A		8/19/2004	2004.633	19	830	15.0	4.8	2.9	<0.020	590	1.60	87	890											

Table 4  
Selected Inorganics (mg/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
WR-445A	D	8/15/2005	2005.619	56	180	35.0	49.0	28.0	<0.020	220	1.10	120	230	2.2	0.21	280	1000	<10	1.0	<0.10	<0.010	<0.10	0.0093	<0.0030
WR-445A		2/14/2006	2006.121	60	200	39.0	58.0	28.0	<0.020	220	1.00	110	210	2.4	0.054	310	960	<10	<1.0	<0.10	<0.010	<0.10	0.0114	0.0027
WR-445A	D	2/14/2006	2006.121	58	190	37.0	55.0	32.0	<0.020	220	1.00	110	210	2.4	0.073	300	950	<10	<1.0	0.2	<0.010	<0.10	0.0111	0.0038
WR-445A		9/6/2006	2006.679	NA	NA	NA	NA	31.0	<0.020	NA	0.90	100	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-445A		2/13/2007	2007.118	56	190	35.0	34.0	25.0	<0.020	230	0.90	99	200	2.3	<0.050	280	880	<10	<1.0	<0.10	<0.010	<0.10	0.0127	0.0027
WR-445A		8/23/2007	2007.641	NA	NA	NA	NA	25.0	<0.020	NA	0.84	100	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-445A		8/14/2008	2008.617	NA	NA	NA	NA	28.0	<0.1	NA	0.87	106	229	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-445A		9/28/2009	2009.740	NA	NA	NA	NA	28.0	<0.1	NA	0.98	107	221	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-445A	B	8/9/2010	2010.603	44	119	27	47	15.0	<0.1	201	1.21	94	114	1.1	NA	NA	680	NA	1.28	NA	NA	<0.02	0.016	<0.002
WR-445A	B	8/17/2011	2011.625	40	105	24	42	16.0	<0.1	203	1.10	92	40	1.1	NA	NA	668	NA	0.83	NA	NA	<0.02	0.014	<0.002
WR-445A	B	8/15/2012	2012.620	44	118	27	46	15.0	<0.1	204	1.10	90	108	1	NA	NA	660	NA	0.87	NA	NA	<0.02	0.016	<0.001
WR-445A	B	9/18/2013	2013.712	42	118	26	47	16.0	<0.1	175	1.30	98	115	1	NA	NA	661	NA	0.77	NA	NA	<0.02	0.016	<0.001
WR-445A	B	8/27/2014	2014.652	42.1	120	25.7	46.4	15.2	<0.1	223	1.12	89.8	108	1.02	NA	NA	684	NA	0.71	NA	NA	<0.1	0.0148	0.00114
WR-445A	B	9/1/2015	2015.666	41.8	118	26.1	47.3	14.5	<0.1	220	1.09	90.1	113	1.02	NA	NA	658	NA	0.73	NA	NA	0.0208	0.0153	<0.001
WR-446A		8/13/2003	2003.613	58	340	48.0	20.0	48.0	0.18	340	<5.0	180	310	3.3	NA	340	1500	<10	2.0	<0.10	<0.010	<0.10	0.012	0.0096
WR-446A		10/6/2003	2003.769	57	370	47.0	21.0	44.0	0.31	320	0.97	210	330	3.1	0.09	340	1500	<10	1.5	<0.10	<0.010	<0.10	0.017	0.0086
WR-446A		2/12/2004	2004.114	72	420	58.0	26.0	41.0	0.029	320	0.69	260	410	3.4	NA	NA	1600	<10	<1.0	NA	NA	NA	NA	NA
WR-446A		5/17/2004	2004.375	72	370	59.0	26.0	47.0	0.026	320	0.72	240	410	3.6	<0.050	420	1700	<10	1.4	<0.10	<0.010	<0.10	0.012	<0.0030
WR-446A		8/16/2004	2004.625	80	410	66.0	27.0	48.0	0.045	350	0.70	250	370	3.3	<0.050	470	1700	<10	1.6	<0.10	<0.010	<0.10	0.0097	<0.0030
WR-446A		2/7/2005	2005.101	79	420	63.0	26.0	43.0	<0.020	350	0.64	240	310	3.0	<0.050	460	1700	<10	1.8	<0.10	<0.010	<0.10	0.013	<0.0030
WR-446A		8/8/2005	2005.600	72	380	57.0	23.0	35.0	<0.020	380	1.00	250	330	2.9	0.058	410	1600	<10	2.0	<0.10	<0.010	<0.10	0.012	0.0032
WR-446A		2/13/2006	2006.118	76	400	60.0	28.0	42.0	<0.020	390	0.93	260	310	3.2	0.075	440	1600	<10	1.3	<0.10	<0.010	<0.10	0.01	0.0021
WR-446A	D	2/13/2006	2006.118	75	390	59.0	28.0	40.0	<0.020	390	0.91	250	300	3.2	0.065	430	1600	<10	1.3	<0.10	<0.010	<0.10	0.0093	<0.0020
WR-446A		9/5/2006	2006.677	NA	NA	NA	NA	51.0	<0.020	NA	0.89	270	380	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-446A		2/12/2007	2007.115	70	390	53.0	27.0	41.0	<0.020	340	0.86	230	290	3.0	<0.050	390	1500	<10	<1.0	<0.10	<0.010	<0.10	0.0128	<0.0020
WR-446A		8/22/2007	2007.638	NA	NA	NA	NA	38.0	<0.010	NA	0.78	240	290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-446A	D	8/22/2007	2007.638	NA	NA	NA	NA	38.0	<0.010	NA	0.86	250	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-446A		8/11/2008	2008.609	NA	NA	NA	NA	32.0	<0.1	NA	0.89	244	287	2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-446A		9/24/2009	2009.729	NA	NA	NA	NA	33.0	<0.1	NA	1.00	285	322	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-446A	B	8/10/2010	2010.605	28	206	24	11	18.0	<0.1	280	1.40	149	74	0.8	NA	NA	796	NA	2.24	NA	NA	0.54	0.021	<0.002
WR-446A	B	8/18/2011	2011.627	32	168	27	10	12.0	<0.1	289	1.10	192	79	0.7	NA	NA	838	NA	1.46	NA	NA	0.022	0.019	<0.002
WR-446A	B	8/15/2012	2012.620	31	181	27	12	9.1	<0.1	284	1.20	145	65	0.5	NA	NA	732	NA	1.32	NA	NA	<0.2	0.023	<0.001
WR-446A	B	9/18/2013	2013.712	38	242	32	13	17.0	<0.1															

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Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
WR-447A	B	8/27/2014	2014.652	39.7	269	21.4	10.1	26.6	<0.1	235	1.34	116	200	2.45	NA	NA	946	NA	0.55	NA	NA	<0.1	0.00938	<0.001
WR-447A	B	9/1/2015	2015.666	39.2	259	21.1	10.3	25.9	<0.1	246	1.34	113	208	2.39	NA	NA	931	NA	0.58	NA	NA	0.242	0.0097	0.00192
WR-448A		5/21/2003	2003.304	53	950	27.0	5.3	3.5	0.12	220	<2.5	1600	290	2.6	0.085	240	3200	74	<1.0	2.7	<0.010	1.5	0.013	<0.0030
WR-448A		8/12/2003	2003.385	45	870	24.0	4.4	3.4	0.14	210	1.10	1500	300	2.4	<0.050	210	3200	20	<1.0	0.4	<0.010	0.24	0.012	0.0055
WR-448A		10/6/2003	2003.769	51	890	26.0	4.7	3.1	0.14	190	0.97	1900	320	2.4	0.084	240	3300	35	<1.0	1.1	<0.010	0.59	0.013	<0.0030
WR-448A		2/10/2004	2004.112	49	860	24.0	5.0	3.3	0.12	200	1.10	1400	280	2.4	<0.050	220	3200	15	<1.0	0.3	<0.010	0.12	0.014	0.0038
WR-448A		8/16/2004	2004.625	57	960	28.0	5.2	3.4	0.1	210	1.10	1500	300	2.2	0.11	260	3200	17	<1.0	0.4	<0.010	0.17	0.0095	<0.0030
WR-448A		2/7/2005	2005.101	55	900	25.0	5.9	3.2	0.055	210	1.20	1500	280	2.4	<0.050	240	3200	<10	<1.0	0.2	<0.010	<0.10	0.015	<0.0030
WR-448A		8/11/2005	2005.608	53	850	24.0	4.9	3.7	0.049	160	1.50	1600	330	2.2	0.069	230	3200	16	<1.0	0.3	<0.010	0.1	0.013	<0.0030
WR-448A	D	8/11/2005	2005.608	57	890	26.0	5.3	3.6	0.053	160	1.60	1600	330	2.5	0.069	250	3300	<10	<1.0	0.3	<0.010	0.11	0.013	<0.0030
WR-448A		2/9/2006	2006.107	56	940	27.0	6.8	3.8	0.029	200	1.30	1500	320	2.6	<0.050	250	3200	<10	<1.0	0.3	<0.010	0.13	0.0157	<0.0020
WR-448A		9/5/2006	2006.677	NA	NA	NA	NA	4.2	0.029	NA	1.30	1700	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-448A		2/12/2007	2007.115	59	810	24.0	6.6	3.5	0.036	190	1.30	1600	320	2.5	<0.050	250	3300	<10	<1.0	0.1	<0.010	<0.10	0.0196	<0.01
WR-448A		2/12/2007	2007.115	63	840	26.0	7.0	3.6	0.035	190	1.20	1600	320	2.5	<0.050	270	3300	<10	<1.0	0.2	<0.010	0.13	0.0181	<0.01
WR-448A		8/22/2007	2007.638	NA	NA	NA	NA	3.7	0.018	NA	1.20	1400	320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-448A		8/11/2008	2008.609	NA	NA	NA	NA	3.8	<0.1	NA	1.20	1660	340	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-448A		9/24/2009	2009.729	NA	NA	NA	NA	4.2	<0.1	NA	1.40	1540	362	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-448A	B	8/11/2010	2010.608	37	1040	24	2.3	4.6	<0.1	217	1.40	1570	343	2.9	NA	NA	3220	NA	0.7	NA	NA	<0.02	0.019	<0.002
WR-448A	B	2/1/2011	2011.085	38	1080	24	2.2	4.2	<0.1	211	1.30	1570	344	2.9	NA	NA	3240	NA	0.49	NA	NA	0.038	0.018	<0.002
WR-448A	B	8/17/2011	2011.625	38	975	23	2.2	4.9	<0.1	219	1.50	1630	368	3	NA	NA	3230	NA	0.34	NA	NA	<0.02	0.02	<0.002
WR-448A	B	8/16/2012	2012.623	38	1040	23	2.2	4.9	<0.1	215	1.50	1540	337	3	NA	NA	3190	NA	0.29	NA	NA	<0.02	0.022	<0.002
WR-448A	B	9/17/2013	2013.710	39	1030	25	2.2	5.3	<0.1	210	1.50	1580	362	3	NA	NA	3240	NA	<0.25	NA	NA	<0.02	0.023	<0.002
WR-448A	B	8/28/2014	2014.655	39.3	1070	25.9	2.2	5.3	<0.1	230	1.46	1590	369	3.03	NA	NA	3220	NA	<0.25	NA	NA	<0.1	0.0228	<0.002
WR-448A	B	9/1/2015	2015.666	38.9	1040	24.6	2.91	5.39	<0.1	238	1.5	1690	405	3.11	NA	NA	3150	NA	<0.25	NA	NA	<0.02	0.0216	<0.002
WR-448B		5/20/2003	2003.304	39	1400	28.0	6.9	2.4	0.078	730	<2.5	1500	690	9.9	0.063	220	4000	120	1.2	2.4	<0.010	1.5	0.004	<0.0030
WR-448B		8/11/2003	2003.384	56	1500	46.0	6.9	3.6	<0.020	780	0.85	2200	920	NA	0.14	330	6300	110	1.9	2.8	<0.010	1.9	<0.0040	<0.0030
WR-448B		10/8/2003	2003.771	61	1900	50.0	7.2	3.4	<0.020	820	1.00	2700	1200	7.7	<0.050	360	6400	<10	<1.0	0.4	<0.010	0.17	<0.0040	<0.0030
WR-448B		2/10/2004	2004.112	68	2100	58.0	7.9	1.7	<0.020	880	0.81	2800	1200	9.4	<0.050	410	7300	<10	<1.0	0.6	<0.010	0.33	<0.0040	<0.0060
WR-448B		8/17/2004	2004.636	150	3100	140.0	13.0	3.8	<0.020	1100	0.92	4200	2000	13	0.062	950	11000	<10	<1.0	0.8	<0.010	0.53	<0.0040	<0.0060
WR-448B		2/8/2005	2005.104	190	3600	160.0	16.0	1.8	<0.020	1000	0.74	4500	1900	17	0.15	1200	12000	190	2.0	7.1	<0.010	4.7	<0.0080	<0.0030
WR-448B		8/16/2005	2005.622	210	3900	190.0	15.0	1.0	<0.020	1000	<1.5	5800	2400	17	0.13	1300	13000	30	1.5	1.2	<0.010	0.6	<0.0010	<0.0060
WR-448B		2/14/2006	2006.121	250	4400</td																			

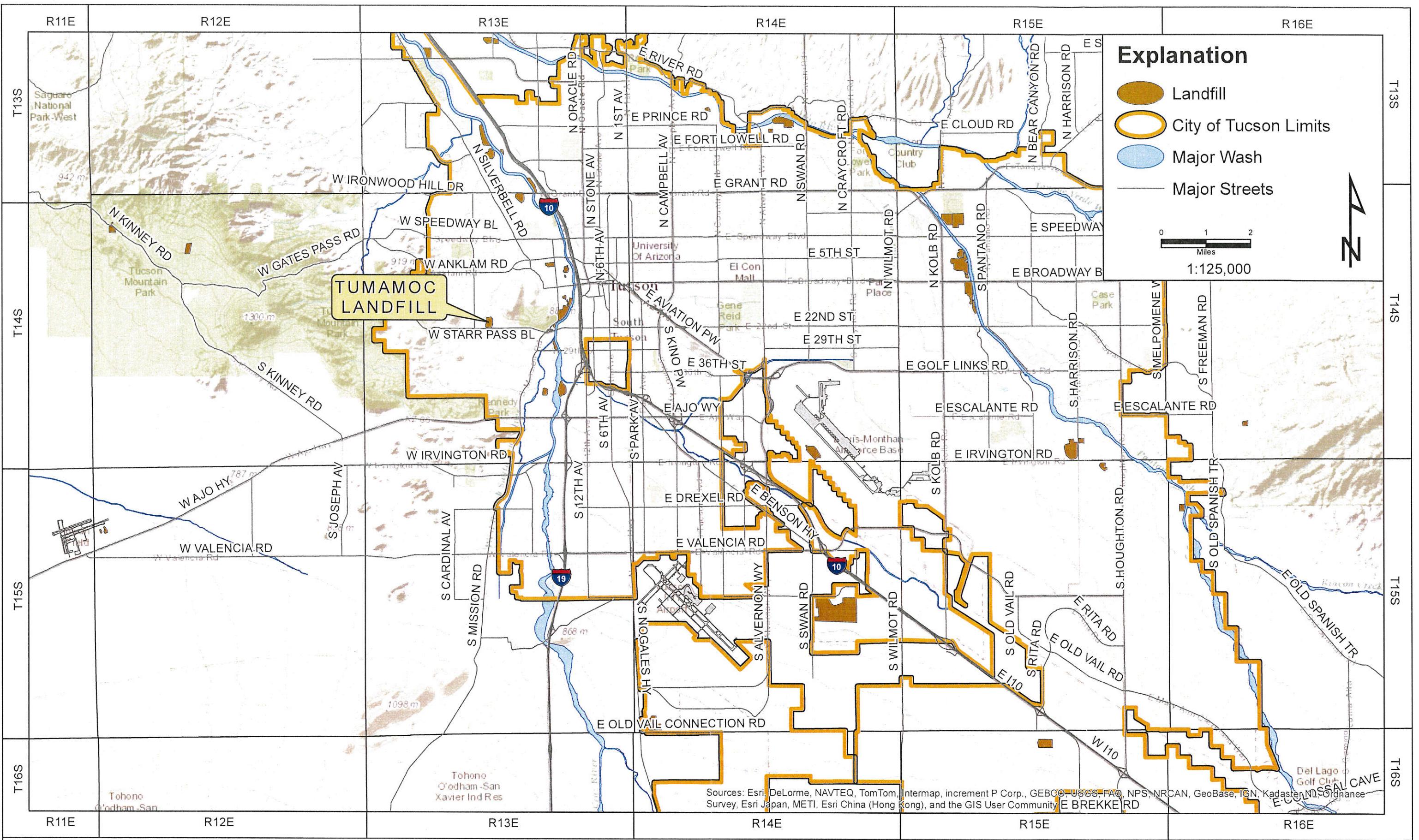
Table 4  
Selected Inorganics (mg/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
WR-449A		2/13/2006	2006.118	31	310	19.0	25.0	28.0	<0.020	220	1.20	94	260	3.1	<0.050	160	1000	<10	<1.0	<0.10	<0.010	<0.10	0.017	<0.0020
WR-449A		9/6/2006	2006.679	NA	NA	NA	NA	31.0	<0.020	NA	1.30	100	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A		2/13/2007	2007.118	30	290	19.0	27.0	27.0	<0.020	220	1.20	100	290	3	<0.050	150	1000	<10	<1.0	<0.10	<0.010	<0.10	0.0195	<0.0020
WR-449A		8/23/2007	2007.641	NA	NA	NA	NA	25.0	<0.020	NA	1.20	95	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A		8/14/2008	2008.617	NA	NA	NA	NA	27.0	<0.1	NA	1.20	105	264	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A		9/28/2009	2009.740	NA	NA	NA	NA	26.0	<0.1	NA	1.40	109	268	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A	HS-60'	11/23/2009	2009.893	NA	NA	NA	NA	25.0	0.042	NA	1.30	100	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A	HS-97'	11/23/2009	2009.893	NA	NA	NA	NA	25.0	0.023	NA	1.30	100	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A	HS-186'	11/23/2009	2009.893	NA	NA	NA	NA	24.0	0.026	NA	1.30	110	270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-449A	B	8/11/2010	2010.608	23	315	15	12	26.0	<0.1	216	1.40	110	270	3	NA	NA	1030	NA	1.24	NA	NA	<0.02	0.023	<0.002
WR-449A	B	8/17/2011	2011.625	22	288	14	11	26.0	<0.1	215	1.30	113	272	3	NA	NA	1040	NA	1.05	NA	NA	<0.02	0.022	<0.002
WR-449A	B	8/16/2012	2012.623	22	317	14	11	25.0	<0.1	218	1.40	114	255	2.9	NA	NA	1020	NA	1.09	NA	NA	<0.02	0.024	<0.001
WR-449A	B	9/17/2013	2013.710	22	311	14	9.9	25.0	<0.1	215	1.50	139	255	2.8	NA	NA	990	NA	1.08	NA	NA	0.024	0.023	<0.001
WR-449A	B	8/28/2014	2014.655	22.3	325	14.7	10.3	23.7	<0.1	235	1.41	120	237	2.73	NA	NA	1010	NA	0.95	NA	NA	<0.1	0.0243	<0.001
WR-449A	B	9/1/2015	2015.666	21.3	318	14	10.6	22.9	<0.1	242	1.43	113	245	2.76	NA	NA	995	NA	1.1	NA	NA	<0.02	0.024	<0.001
WR-454A		10/13/2004	2004.781	17	150	4.5	<2.0	2.0	<0.020	300	0.69	37	33	<0.50	<0.050	61	480	18	1.2	0.4	<0.010	<0.10	<0.0040	0.0046
WR-454A		2/14/2005	2005.121	18	150	4.9	2.1	2.2	<0.020	320	0.79	35	32	<0.50	<0.050	66	460	56	1.3	2.6	<0.010	0.48	<0.0040	<0.0030
WR-454A		8/15/2005	2005.619	17	150	4.3	<2.0	2.0	<0.020	310	0.97	150	33	<0.50	0.12	60	470	<10	<1.0	0.2	<0.010	<0.10	<0.0040	<0.0030
WR-454A		2/7/2006	2006.101	17	160	4.4	<2.0	2.0	<0.020	310	0.82	34	33	<0.50	<0.050	61	470	<10	<1.0	<0.10	<0.010	<0.10	0.0016	<0.0020
WR-454A		8/28/2006	2006.655	NA	NA	NA	NA	2.0	<0.020	320	0.83	34	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454A		2/5/2007	2007.096	17	150	4.4	<2.0	2.3	<0.020	310	0.88	38	36	<0.50	<0.25	60	460	<10	<1.0	<0.10	<0.010	0.33	<0.003	<0.0020
WR-454A		2/5/2007	2007.096	17	150	4.5	<2.0	2.3	<0.020	320	0.84	36	34	<0.50	<0.25	61	440	<10	<1.0	<0.10	<0.010	0.49	<0.003	<0.0020
WR-454A		8/15/2007	2007.619	NA	NA	NA	NA	2.0	<0.010	NA	0.81	35	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454A	D	8/15/2007	2007.619	NA	NA	NA	NA	1.9	<0.010	NA	0.84	35	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454A		8/12/2008	2008.612	NA	NA	NA	NA	2.0	<0.1	NA	0.80	34	33	0.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454A		9/29/2009	2009.742	NA	NA	NA	NA	2.0	<0.1	NA	0.86	36	33	0.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454A	B	8/9/2010	2010.603	15	160	4.1	1.3	1.7	<0.1	298	0.88	36	33	0.31	NA	NA	465	NA	1.01	NA	NA	0.63	<0.002	<0.002
WR-454A	B	8/18/2011	2011.627	15	163	4.3	1.3	2.2	<0.1	293	0.85	38	34	0.29	NA	NA	473	NA	0.33	NA	NA	0.26	<0.002	<0.002
WR-454A	B	8/15/2012	2012.620	16	167	4.3	1.2	1.6	<0.1	302	0.82	37	34	0.35	NA	NA	473	NA	0.42	NA	NA	0.088	0.0014	<0.001
WR-454A	B	9/18/2013	2013.712	8.5	174	4.3	1.2	2.0	<0.1	248	0.92	37	32	0.29	NA	NA	449	NA	<0.25	NA	NA	<0.02	0.0026	<0.001
WR-454A	B	8/28/2014	2014.655	7.37	174	4.33	1.23	2.1	<0.1	272	0.87	37.2	33	0.292	NA	NA	455	NA	<0.25	NA	NA	<0.1	0.00206	<0.001
WR-454A	B	9/1/2015	2015.666	12.3	164	4.21	1.26	1.96	<0.1	312	0.913	35.1	31.3	0.303	NA	NA	452	NA	0.42	NA	NA	0.0274	0.00235	<0.001
WR-454B		10/11/2004	2004.776	83	260	53.0	3.3	8.4	<0.020	220	0.81	270	330	2.7	0.05	420	1300	140	1.6	0.6	<0.010	0.26	0.0088	0.0044
WR-454B																								

Table 4  
Selected Inorganics (mg/L) for Groundwater Monitor Wells  
Tumamoc Landfill

Well	Notes	Date	DecDate	Calcium	Sodium	Magnesium	Potassium	Nitrate	Nitrite	Bicarbonate Alkalinity	Fluoride	Sulfate	Chloride	Bromide	Total Phosphorus	Hardness (CaCO <sub>3</sub> )	Total Dissolved Solids	Total Suspended Solids	Total Organic Carbon	Aluminum	Chromium	Iron	Arsenic	Lead
WR-454B		2/7/2006	2006.101	82	300	51.0	3.5	6.8	<0.020	250	0.86	240	320	2.8	0.076	410	1200	110	1.5	1.3	<0.010	0.71	0.0068	0.0036
WR-454B		8/31/2006	2006.663	NA	NA	NA	NA	5.7	<0.020	NA	0.83	280	430	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454B		2/8/2007	2007.104	100	340	55.0	7.4	5.4	<0.020	270	0.68	280	410	3.1	0.094	480	1500	60	2.2	5.6	0.02	3.6	0.0047	0.026
WR-454B		8/20/2007	2007.633	NA	NA	NA	NA	3.9	<0.020	NA	0.75	270	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454B		8/7/2008	2008.598	NA	NA	NA	NA	4.7	<0.1	NA	0.69	310	458	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454B	B	9/23/2009	2009.726	NA	NA	NA	NA	3.3	<0.1	NA	0.75	221	341	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-454B	B	8/10/2010	2010.605	56	328	41	2.6	4.5	<0.1	268	0.82	215	382	2.9	NA	NA	1200	NA	1.89	NA	NA	0.099	0.0032	<0.002
WR-454B	B	8/18/2011	2011.627	43	280	30	1.6	5.4	<0.1	261	0.76	207	322	2.7	NA	NA	1170	NA	1.36	NA	NA	<0.02	0.0041	<0.002
WR-454B	B	8/15/2012	2012.620	57	316	40	2.2	3.9	<0.1	270	0.76	213	329	2.7	NA	NA	1200	NA	1.28	NA	NA	<0.02	0.0046	<0.001
WR-454B	B	8/15/2012	2012.620	58	322	41	2.2	3.8	<0.1	269	0.75	213	332	2.7	NA	NA	1180	NA	1.28	NA	NA	<0.02	0.005	<0.001
WR-454B	B	9/17/2013	2013.710	49	324	39	2.1	4.5	<0.1	253	0.86	211	328	2.5	NA	NA	1160	NA	1.3	NA	NA	<0.02	0.005	<0.001
WR-454B	B	8/28/2014	2014.655	50.3	304	35.8	1.9	4.9	<0.1	295	0.82	222	271	1.97	NA	NA	1110	NA	1.09	NA	NA	<0.1	0.00519	<0.001
WR-454B	B	9/1/2015	2015.666	42.6	300	32.5	2.3	4.81	<0.1	309	0.819	202	242	1.95	NA	NA	1040	NA	1.08	NA	NA	<0.02	0.00553	<0.001
WR-455A		10/12/2004	2004.779	36	150	18.0	7.8	2.9	<0.020	320	0.89	49	53	0.62	0.093	160	590	270	<1.0	6.3	0.02	0.97	0.0098	0.011
WR-455A		2/15/2005	2005.123	40	170	20.0	3.7	3.1	<0.020	330	0.86	54	69	0.55	0.14	180	590	260	1.8	5.1	<0.010	1	0.014	0.011
WR-455A		8/16/2005	2005.622	37	140	19.0	3.6	3.2	<0.020	310	0.84	59	77	0.66	0.23	170	610	95	<1.0	1.9	0.01	0.31	0.011	<b>0.26</b>
WR-455A		2/7/2006	2006.101	45	160	22.0	4.9	3.1	<0.020	310	0.84	49	76	0.63	0.065	200	600	580	N/A	3.0	<0.010	0.48	0.009	0.0055
WR-455A	D	2/7/2006	2006.101	48	150	21.0	6.7	3.1	<0.020	310	0.82	48	73	0.62	0.055	210	590	520	<1.0	6.3	<0.010	0.97	<b>0.0598</b>	<b>0.0568</b>
WR-455A		8/31/2006	2006.663	NA	NA	NA	NA	3.3	<0.020	NA	1.10	54	84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-455A		2/8/2007	2007.104	32	150	15.0	3.5	2.9	0.062	330	0.95	71	78	0.6	0.078	140	610	76	<1.0	1.7	0.03	0.35	0.0062	0.0103
WR-455A		8/20/2007	2007.633	NA	NA	NA	NA	2.8	<0.020	NA	0.93	61	73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-455A		8/7/2008	2008.598	NA	NA	NA	NA	2.9	<0.1	NA	1.00	60	77	0.65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-455A	B	9/23/2009	2009.726	NA	NA	NA	NA	2.4	<0.1	NA	1.20	67	62	0.52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-455A	B	8/10/2010	2010.605	24	184	12	1.5	2.3	<0.1	307	1.30	69	65	0.57	NA	NA	594	NA	0.92	NA	NA	<0.02	0.015	<0.002
WR-455A	B	8/18/2011	2011.627	20	139	12	1.3	0.7	<0.1	286	0.96	60	80	0.68	NA	NA	557	NA	0.86	NA	NA	<0.02	0.0096	<0.002
WR-455A	B	8/15/2012	2012.620	18	176	15	1.6	0.7	<0.1	266	0.94	57	80	0.73	NA	NA	523	NA	0.42	NA	NA	<0.02	0.012	<0.001
WR-455A	B	9/17/2013	2013.710	15	175	15	1.6	0.8	<0.1	246	1.00	57	80	0.66	NA	NA	525	NA	0.43	NA	NA	<0.02	0.012	<0.001
WR-455A	B	8/28/2014	2014.655	13.3	179	14.5	1.57	0.9	<0.1	261	0.97	57.2	79.4	0.692	NA	NA	523	NA	0.34	NA	NA	<0.1	0.0131	<0.001
WR-455A	B	9/1/2015	2015.666	9.83	175	14.1	1.87	0.873	<0.1	264	0.993	56.8	79.2	0.687	NA	NA	516	NA	0.41	NA	NA	<0.02	0.014	<0.001
WR-455B		10/11/2004	2004.776	95	120	32.0	17.0	2.7	0.11	300	0.55	110	41	<0.50	0.34	370	670	3200	<10	18.0	0.04	5.5	0.0082	0.019
WR-455B		2/15/2005	2005.123	60	130	27.0	9.3	2.6	<0.020	320	0.60	78	53	<0.50	0.25	260	580	510	<1.0	9.1	<0.010	2.1	0.0084	0.016
WR-455B		8/16/2005	2005.622	65	110	24.0	7.9	2.9	<0.020	320	0.69	67	67	0.53	0.29	260	620	140	<5.0	6.9	0.02	1.5	0.007	<b>0.16</b>
WR-455B		2/7/2006	2006.101	60	7.2	25.0	7.2	3.4	<0.020	320	0.65	54	57	0.51	0.077	250	580	810	<5.0	5.6	0.03	1.5	0	

## **FIGURES**





**FIGURE 2**  
Site Map  
Tumamoc Landfill

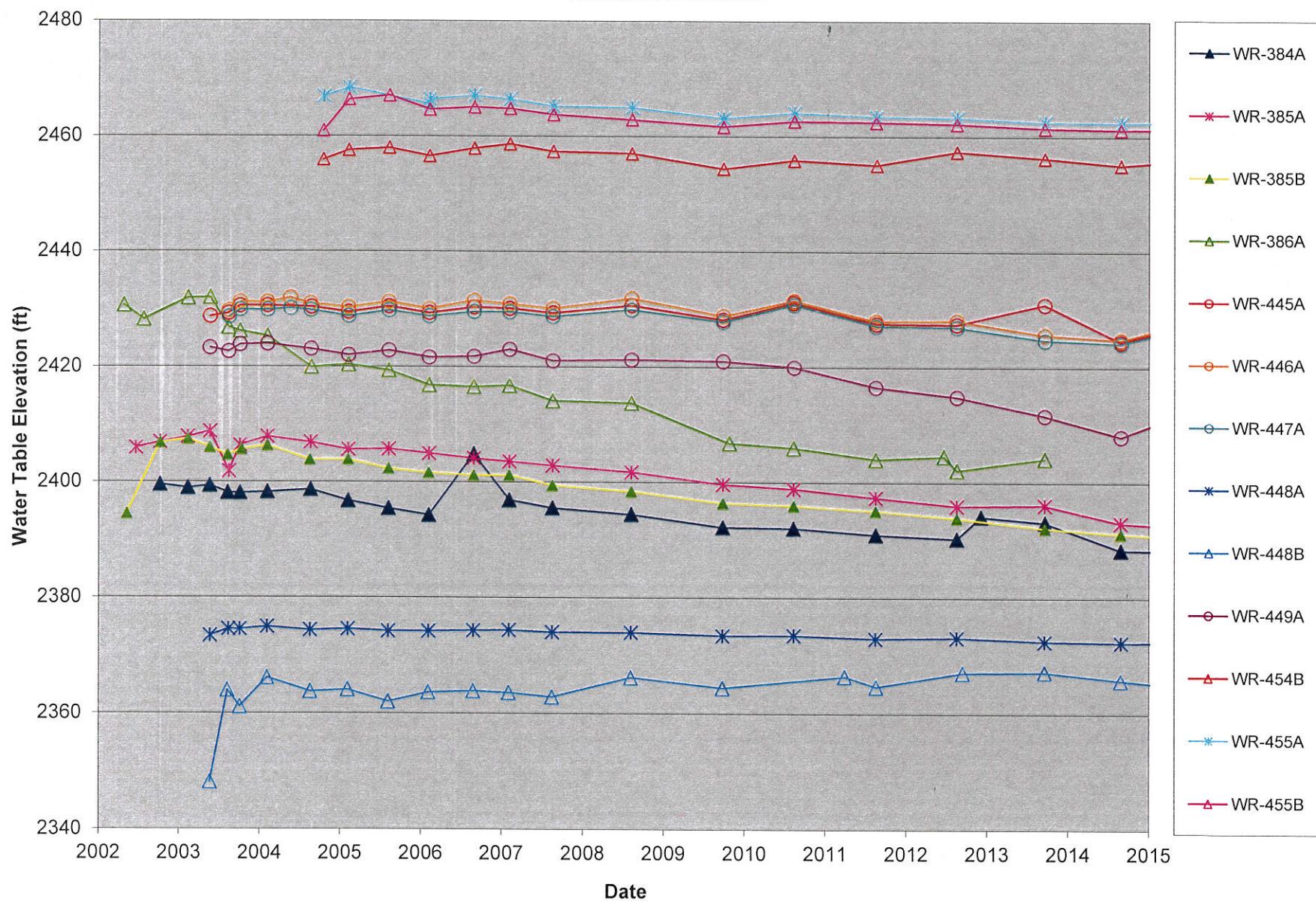


**FIGURE 3**  
Potentiometric Surface Map (Shallow)  
Tumamoc Landfill

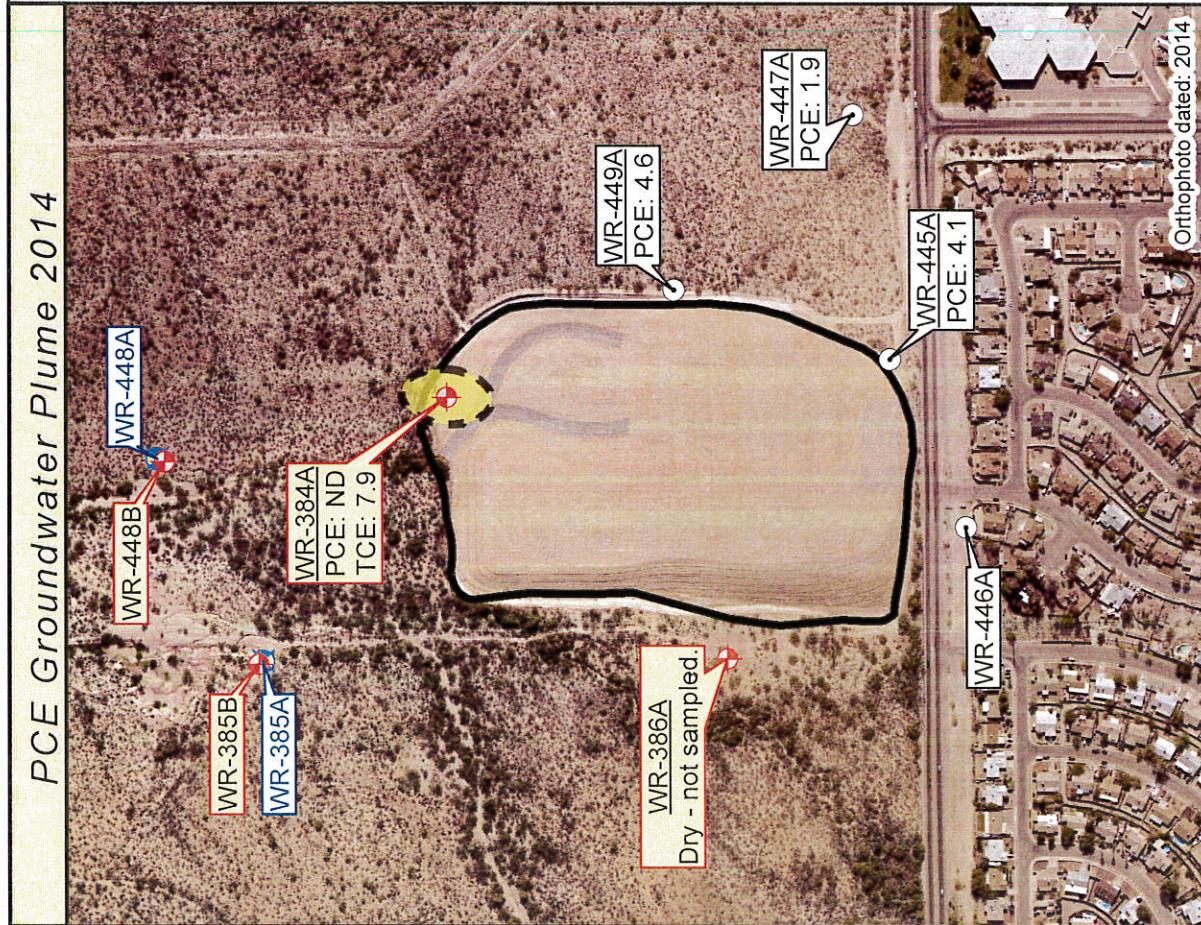


**FIGURE 4**  
Potentiometric Surface Map (Deep)  
Tumamoc Landfill

**Figure 5**  
**Hydrographs for all Groundwater Monitor Wells**  
**Tumamoc Landfill**

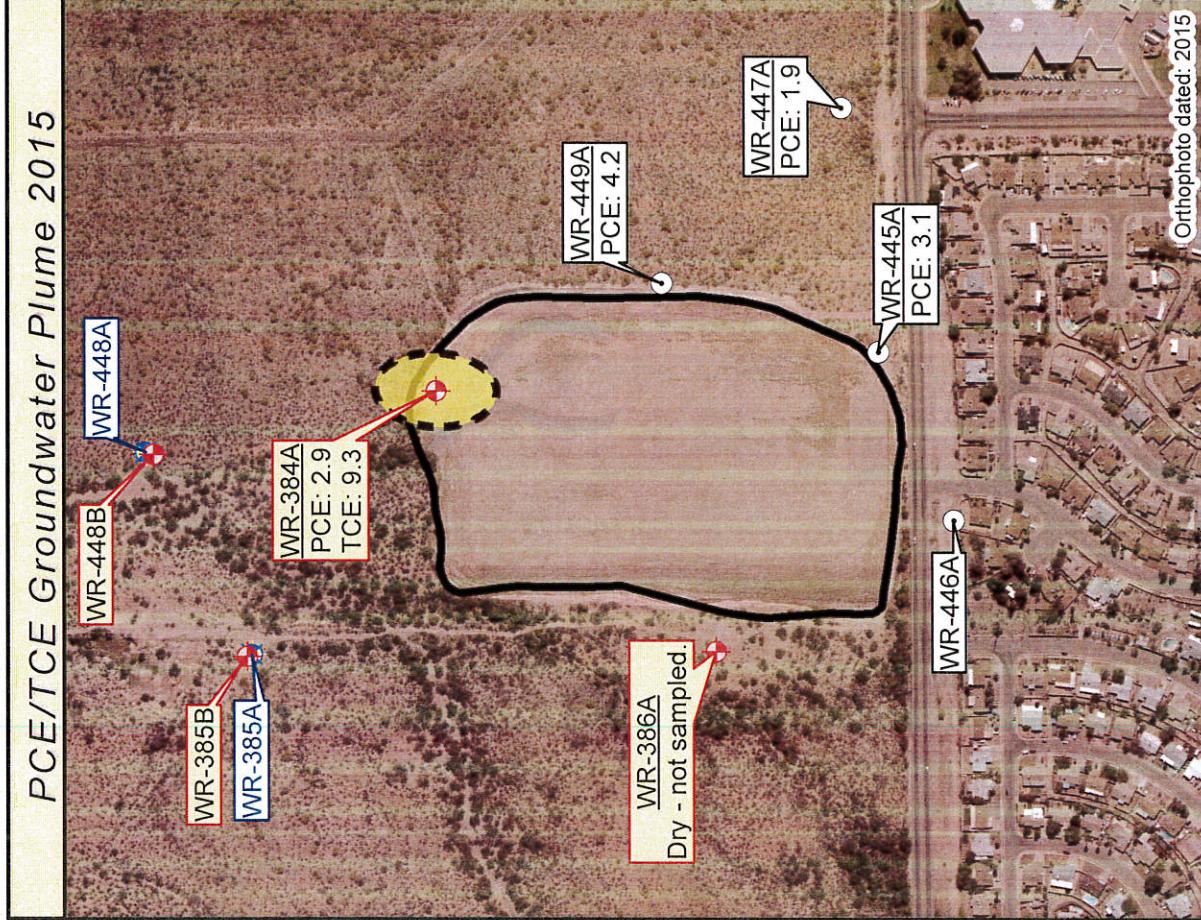


\*WR-454A is normally artesian well and is not plotted. Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles. WR-386A has been dry since August 2014.

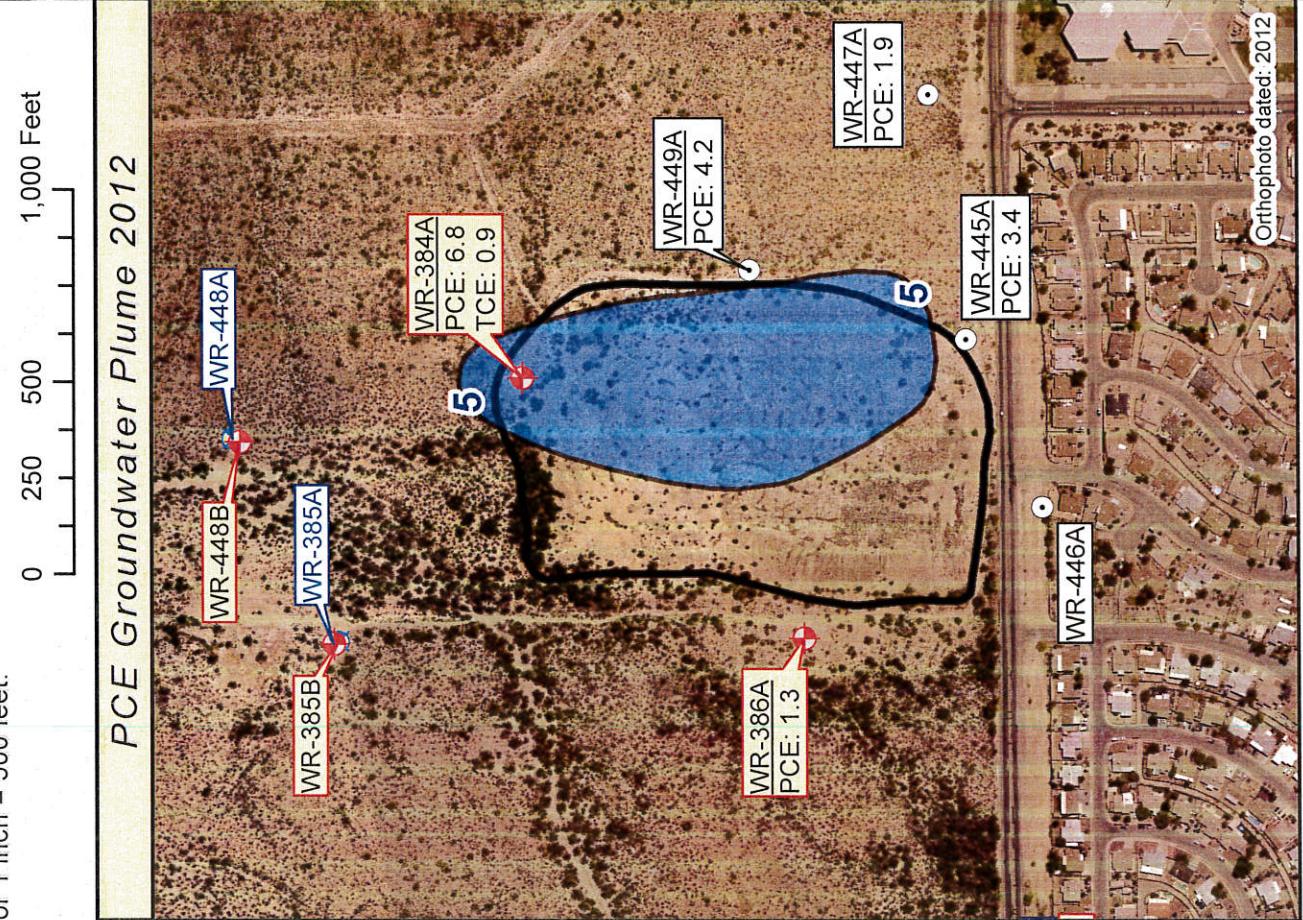


#### Explanation

- Landfill Boundary
- PCE Groundwater Plume Boundary at 5 ug/L
- Shallow Screened Interval
- Deep Screened Interval
- Long Screened Interval

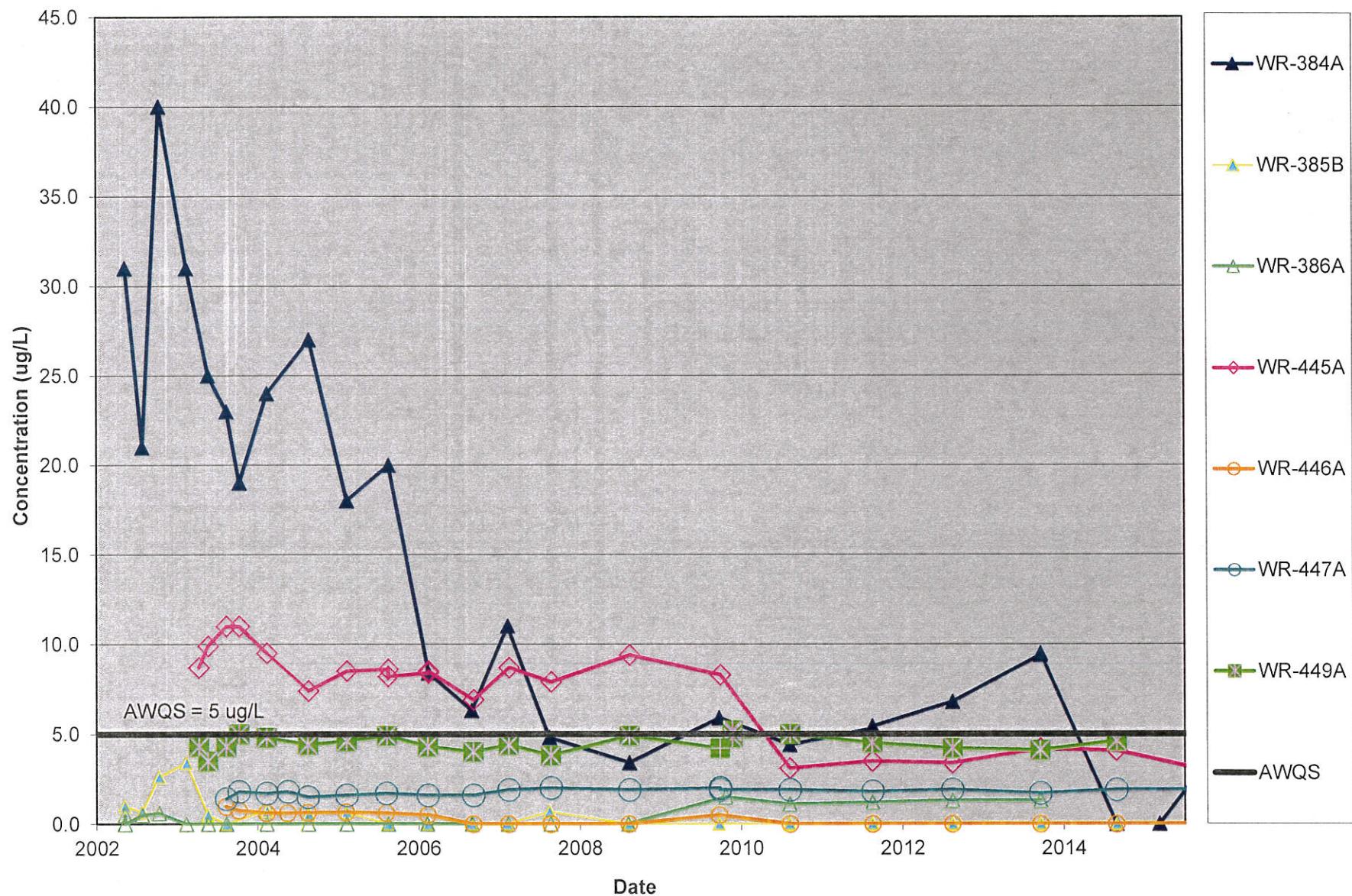


All maps contain an estimated PCE & TCE plume boundary of 5 ug/L where applicable. 2012, 2013 and 2014 boundaries were also provided in previous monitoring reports. Detected concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) are noted below the well name. If no concentration noted below well name = non-detect. All maps are provided at the same scale: 1:6,000 absolute or 1 inch = 500 feet.



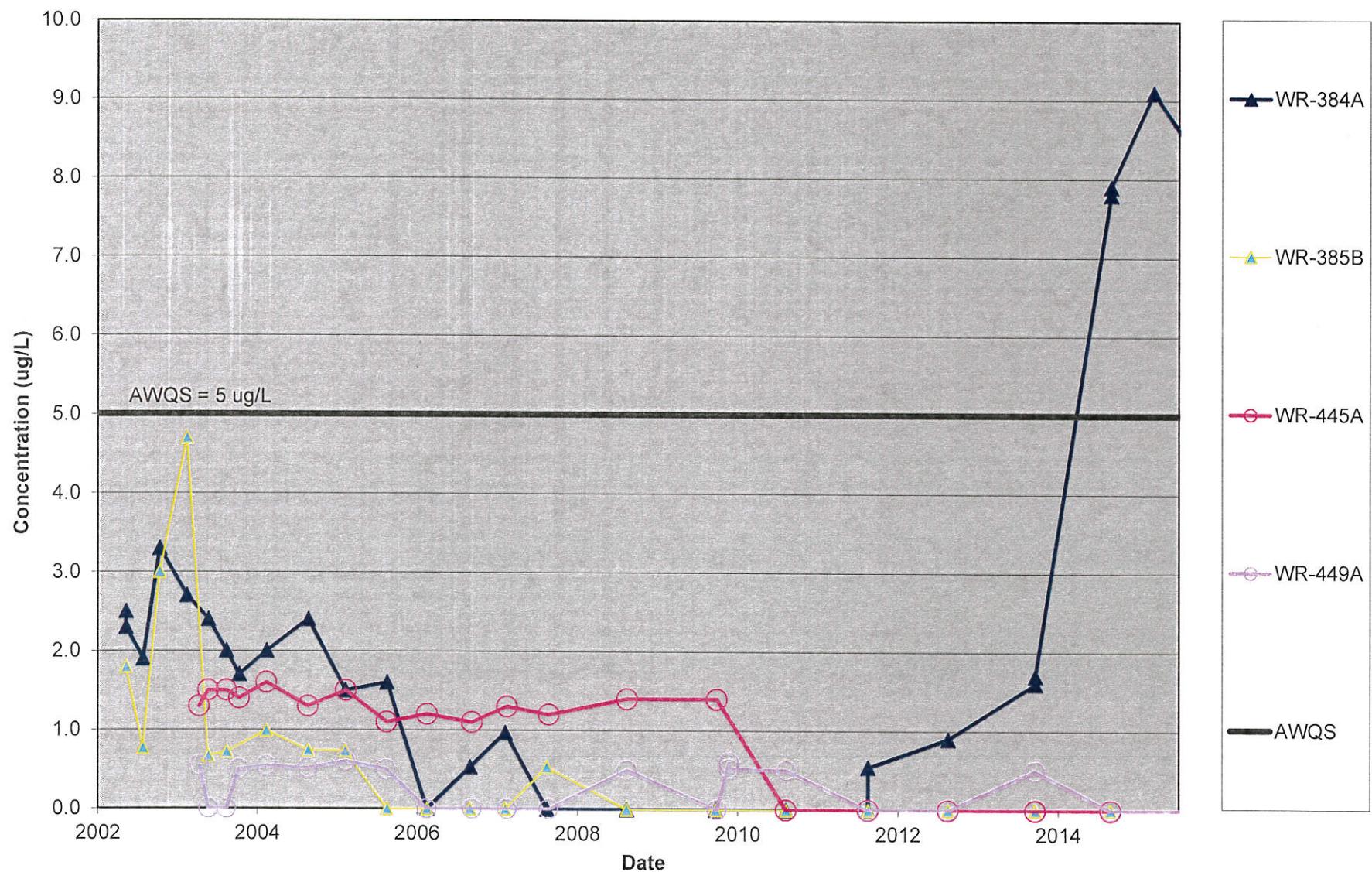
**FIGURE 6**  
PCE/TCE Concentration Maps in Groundwater  
Years 2012 - 2015  
Tumamoc Landfill

**Figure 7**  
**PCE Concentrations in Groundwater Monitor Wells**  
**Tumamoc Landfill**

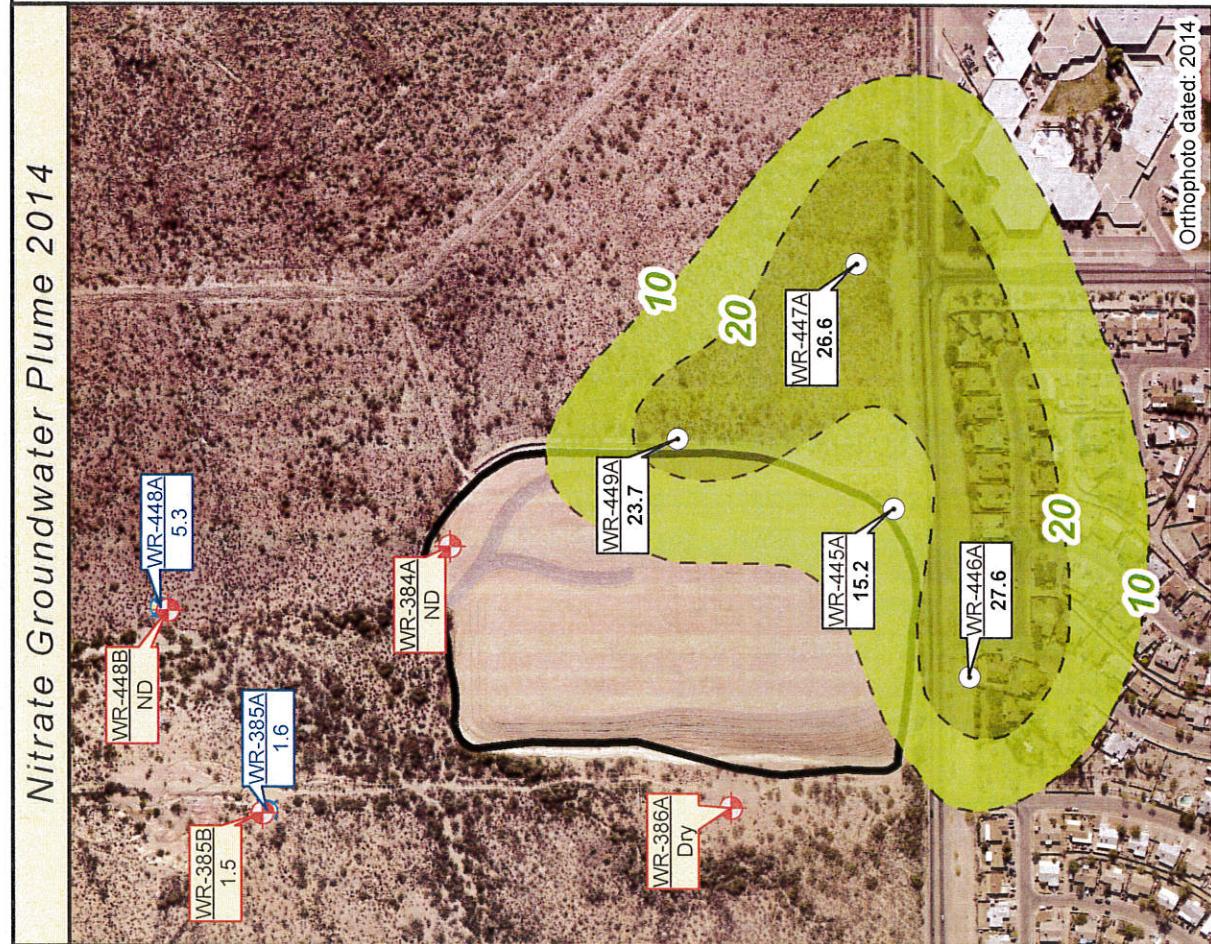


Note: Shapes on lines indicate well's screened interval: shallow are triangles, and long are circles. Deep wells are all non-detect for PCE.

**Figure 8**  
**TCE Concentrations in Groundwater Monitor Wells**  
**Tumamoc Landfill**

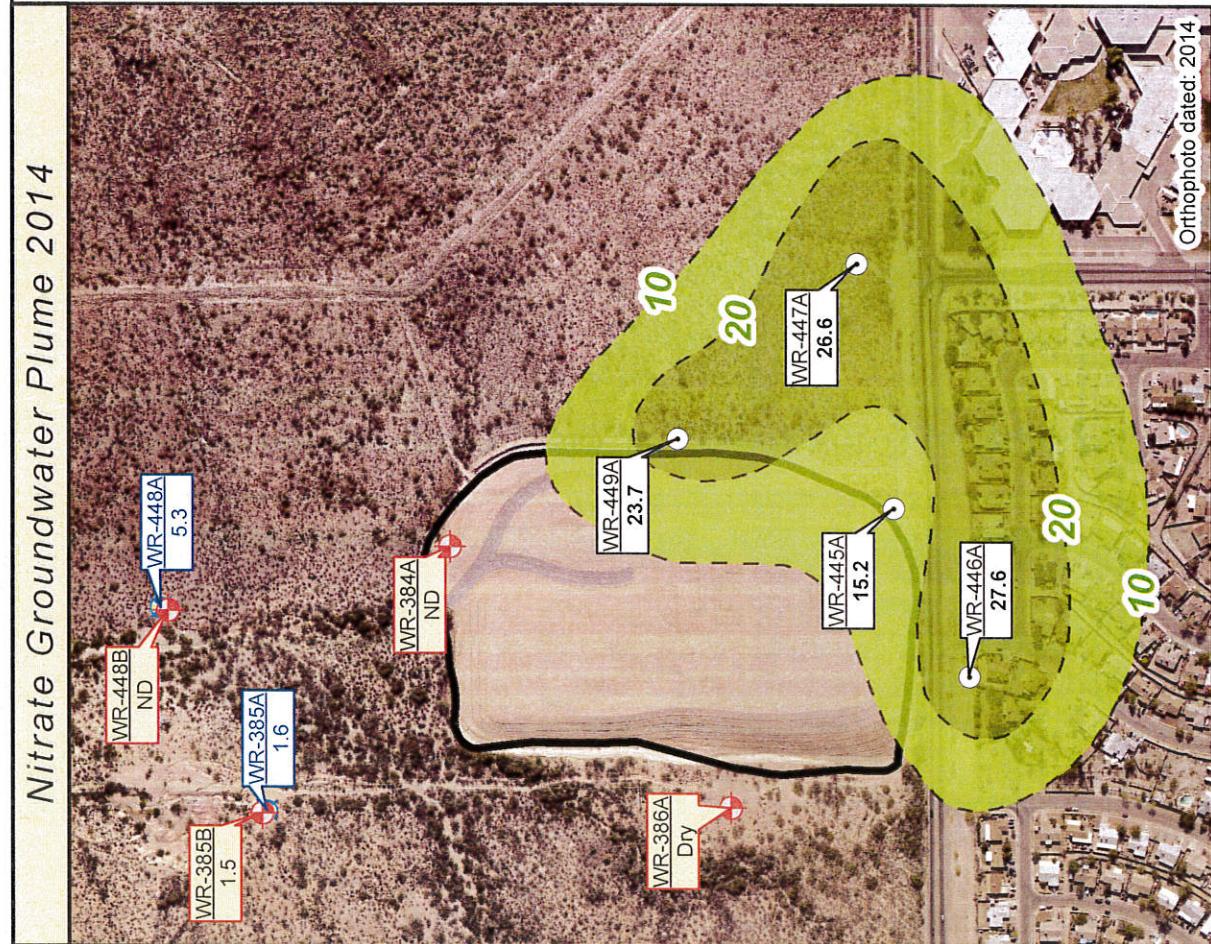


Note: Shapes on lines indicate well's screened interval: shallow are triangles, and long are circles. Only wells with TCE detections are charted.



#### Explanation

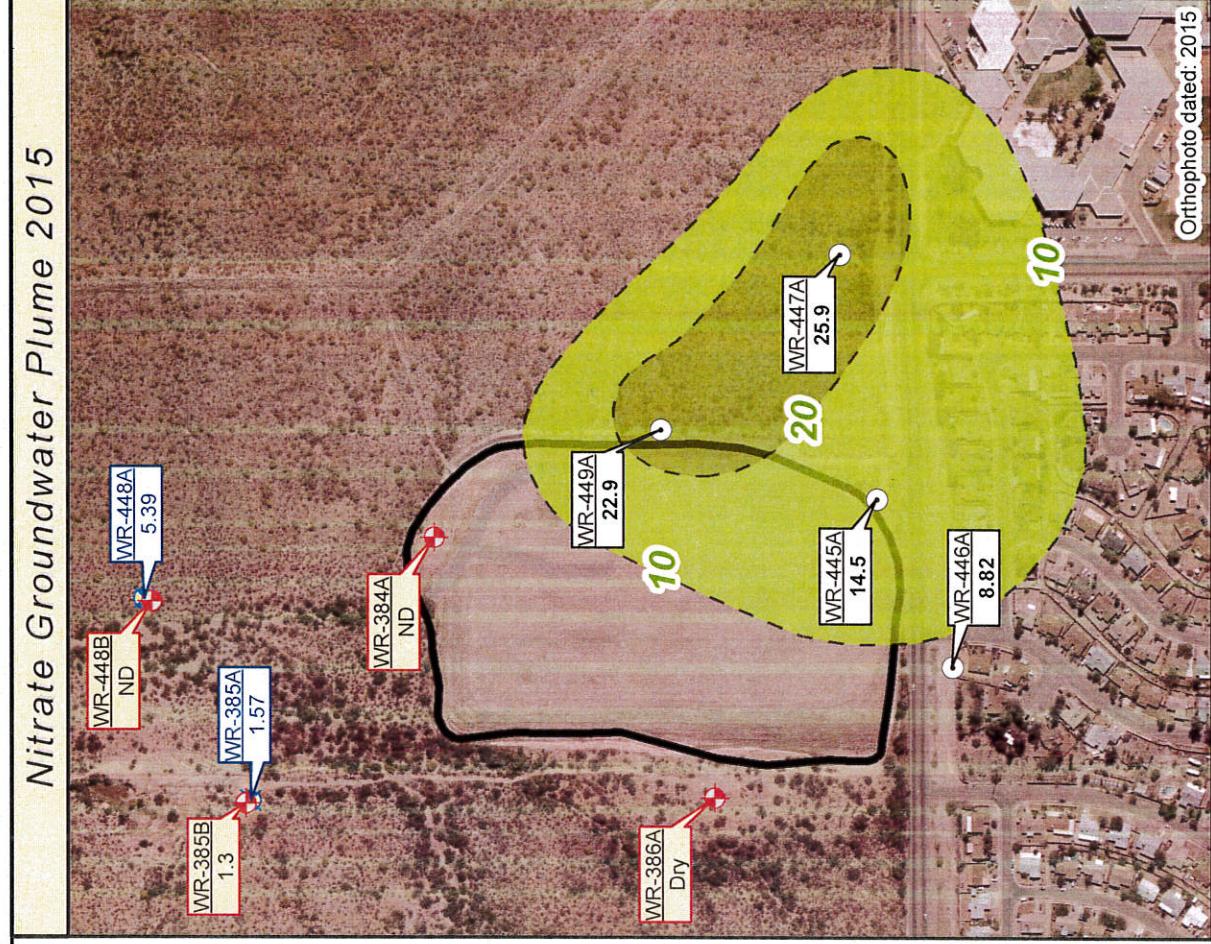
- Groundwater Monitor Well
- Shallow Screened Interval
- Deep Screened Interval
- Long Screened Interval
- ◆ Landfill Boundary



All maps contain an estimated Nitrate plume boundary of 10 & 20 mg/L. 2014 - 2012 boundaries were also provided in previous monitoring reports. All maps are provided at the same scale: 1:6,000 absolute or 1 inch = 500 feet. ND = Nondetect.



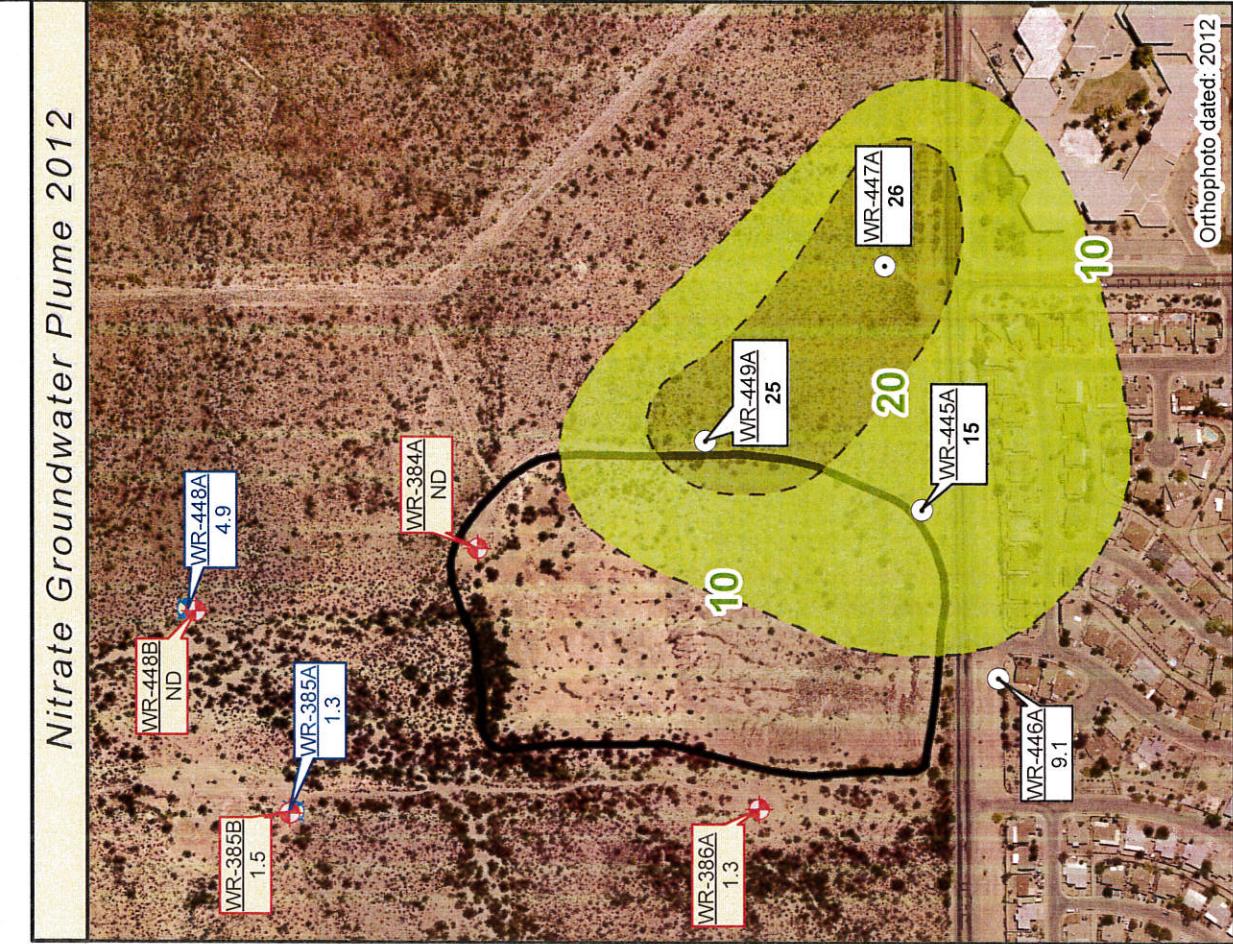
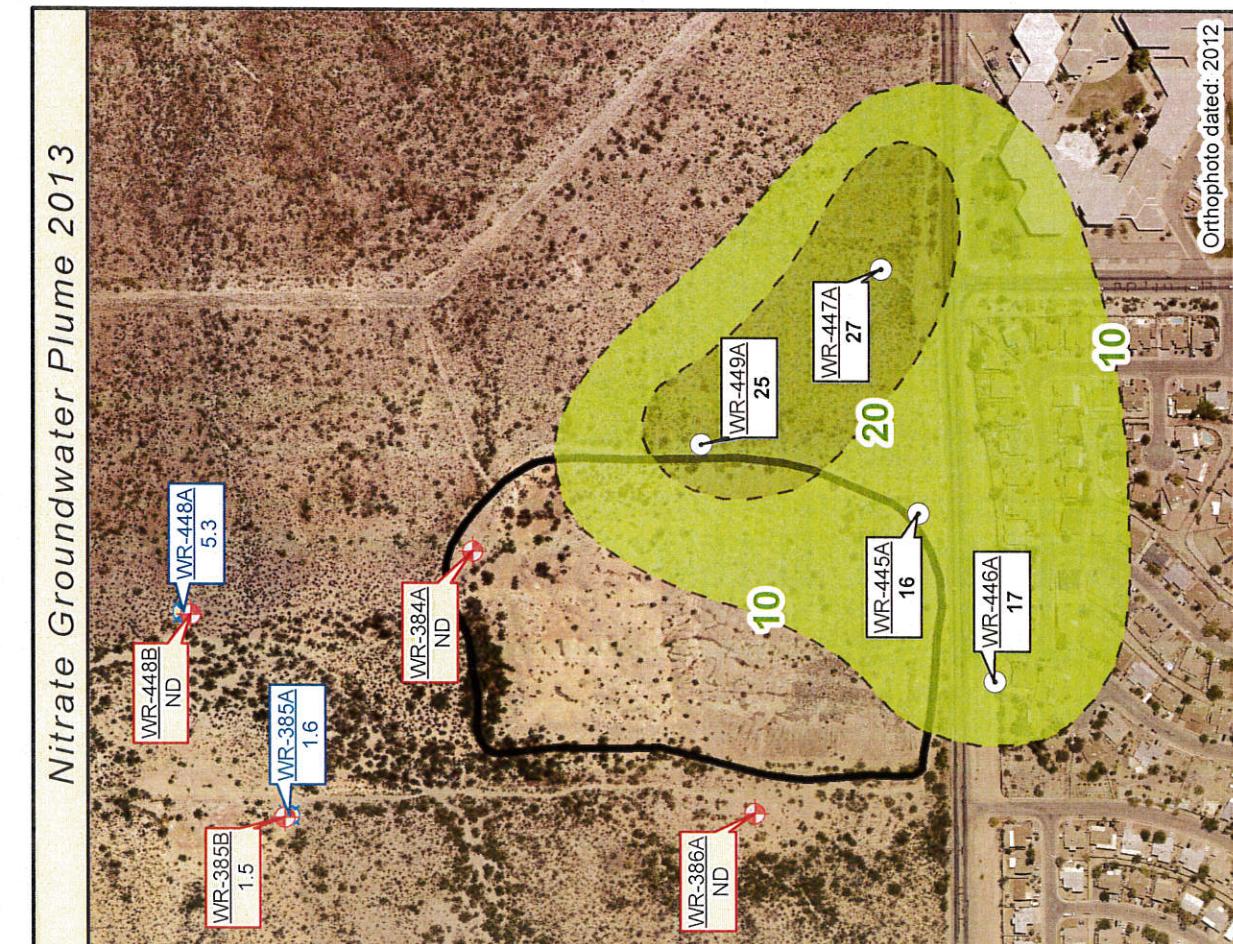
0 250 500 1,000 Feet



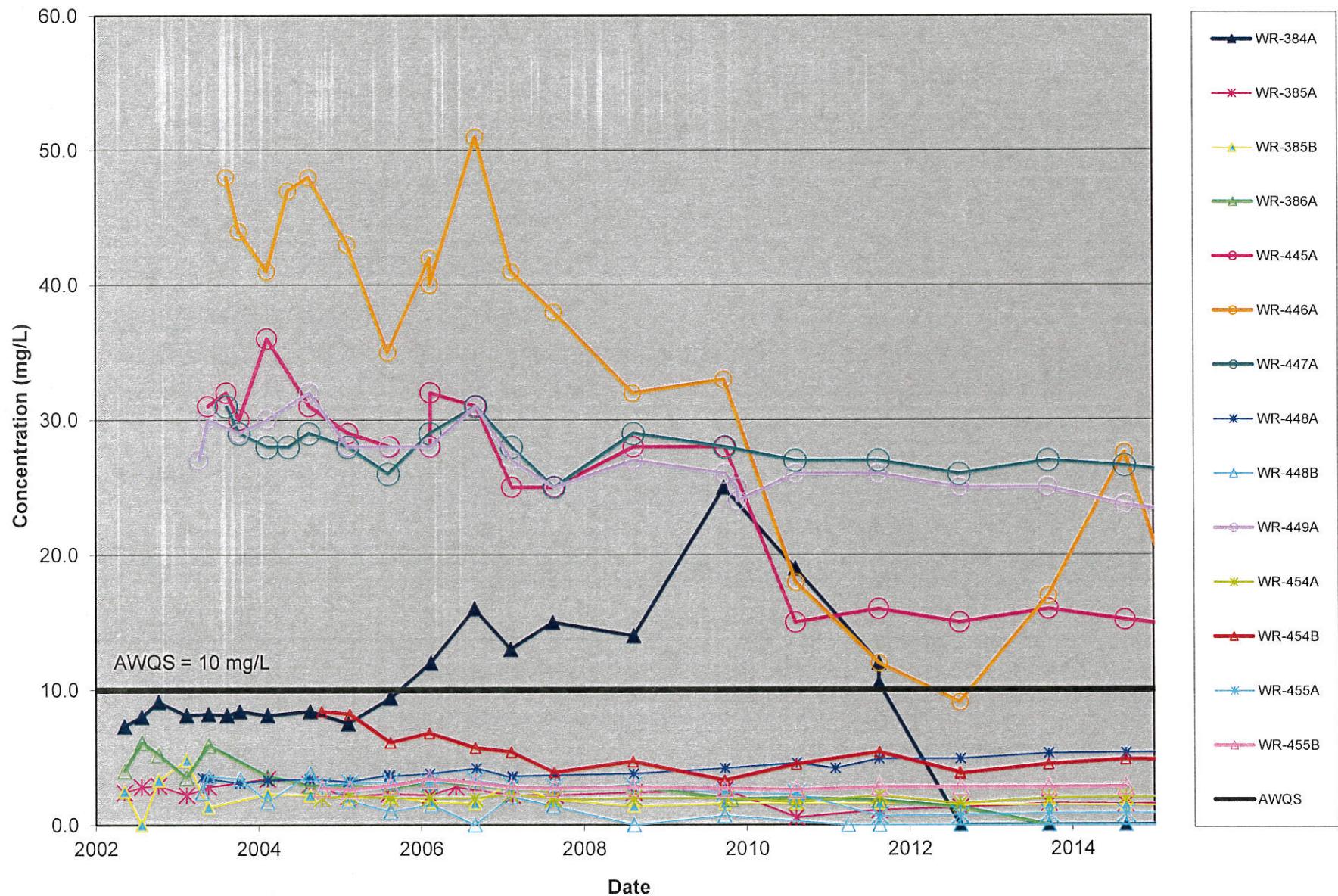
All maps contain an estimated Nitrate plume boundary of 10 & 20 mg/L. 2014 - 2012 boundaries were also provided in previous monitoring reports. All maps are provided at the same scale: 1:6,000 absolute or 1 inch = 500 feet. ND = Nondetect.



0 250 500 1,000 Feet



**Figure 10**  
**Nitrate Concentrations in Groundwater Monitor Wells**  
**Tumamoc Landfill**



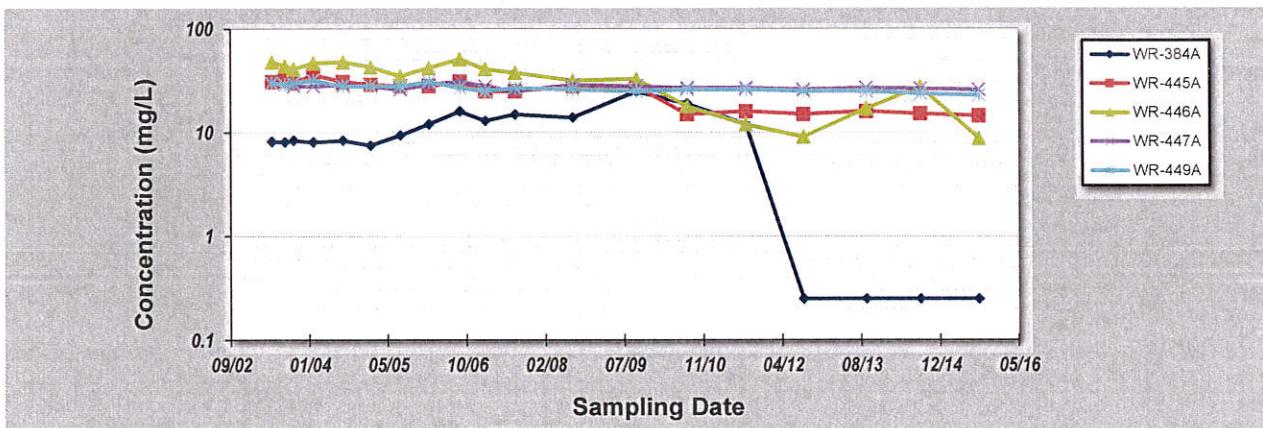
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## GSI MANN-KENDALL TOOLKIT for Constituent Trend Analysis

Evaluation Date: 7-Jan-16  
 Facility Name: Tumamoc Landfill  
 Conducted By: Arturo Burgos

Job ID: Figure 11  
 Constituent: Nitrate  
 Concentration Units: mg/L

Sampling Point ID:	WR-384A	WR-445A	WR-446A	WR-447A	WR-449A	
Sampling Event	Sampling Date	NITRATE CONCENTRATION (mg/L)				
1	5/20/2003	8.2	31.0	48.0	31.0	30.0
2	8/11/2003	8.1	32.0	44.0	29.0	29.0
3	10/7/2003	8.4	30.0	41.0	28.0	30.0
4	2/10/2004	8.1	36.0	47.0	28.0	32.0
5	8/17/2004	8.4	31.0	48.0	29.0	28.0
6	2/8/2005	7.5	29.0	43.0	28.0	28.0
7	8/16/2005	9.4	28.0	35.0	26.0	28.0
8	2/14/2006	12.0	28.0	42.0	29.0	31.0
9	8/29/2006	16.0	31.0	51.0	31.0	27.0
10	2/6/2007	13.0	25.0	41.0	28.0	25.0
11	8/15/2007	15.0	25.0	38.0	25.0	27.0
12	8/13/2008	14.0	28.0	32.0	29.0	26.0
13	9/23/2009	25.0	28.0	33.0	28.0	25.0
14	8/9/2010	19.0	15.0	18.0	27.0	26.0
15	8/17/2011	12.0	16.0	12.0	27.0	26.0
16	8/16/2012	0.3	15.0	9.1	26.0	25.0
17	9/18/2013	0.3	16.0	17.0	27.0	25.0
18	8/27/2014	0.3	15.2	27.6	26.6	23.7
19	9/1/2015	0.25	14.5	8.82	25.9	22.9
20						
Coefficient of Variation:	0.68	0.29	0.42	0.06	0.09	
Mann-Kendall Statistic (S):	4	-123	-119	-82	-125	
Confidence Factor:	54.1%	>99.9%	>99.9%	99.8%	>99.9%	
Concentration Trend:	No Trend	Decreasing	Decreasing	Decreasing	Decreasing	



Notes:

- At least four independent sampling events per well are required for calculating the trend. Methodology is valid for 4 to 40 samples.
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ( $S > 0$ ) or decreasing ( $S < 0$ ):  $>95\% =$  Increasing or Decreasing;  
 $\geq 90\% =$  Probably Increasing or Probably Decreasing;  $< 90\%$  and  $S > 0 =$  No Trend;  $< 90\%$ ,  $S \leq 0$ , and  $COV \geq 1 =$  No Trend;  $< 90\%$  and  $COV < 1 =$  Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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Figure 11 Mann Kendall Trend Analysis

## **APPENDIX A**

### **Groundwater Analyte Lists for 2015**

Project Name:	<b>Tumamoc Landfill</b>
Sample Points:	WR-384A, WR-385A, WR-385B, WR-386A, WR-445A, WR-446A, WR-447A, WR-448A, WR-448B, WR-449A, WR-454A, WR-454B, WR-455A, WR-455B

Samples Collected By:	Environmental Services
Sampling Frequency:	Annual Sampling (August)

Contact Person:	Arturo Burgos
Telephone:	(520) 837-3788

Reporting Frequency:	Annual
Reports Due:	VOCs 10 days; full report 30 days
Send Report To:	Lori Ehman

Required Field Parameters	Methods	Lab
Conductivity	YSI	Field Staff
Temp	YSI	Field Staff
Turbidity	Hanna	Field Staff
pH	YSI	Field Staff

Parameter	Methods	Lab
Alkalinity (Bicarbonate)	SM 2320 B	TWQL
Ammonia	EPA 350.1	MWH
Arsenic	EPA 200.8	TWQL
Barium	EPA 200.7	TWQL
Calcium	EPA 200.7	TWQL
Iron	EPA 200.7	TWQL
Lead	EPA 200.8	TWQL
Magnesium	EPA 200.7	TWQL
Manganese	EPA 200.7	TWQL
Potassium	EPA 200.7	TWQL
Sodium	EPA 200.7	TWQL
Anions*	EPA 300.0	TWQL
TOC	SM 5310 D	TWQL
TDS	SM 2540 C	TWQL
VOCs	EPA 8260 (HCL)	TWQL

Matrix: Groundwater; Site: Wellhead; ADEQ Type: NONE

\*Anion List: Nitrate, Nitrite, Sulfate, Fluoride, Chloride

## **APPENDIX B**

### **Field Data Collection Sheets For Groundwater Sampling**

Correction factor -0.25

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 199D (diameter) 5d factor 3.06Well Name **WR-447A**Project **Tumamoc Landfill**Date Aug 19, 2015Field Personnel KV/JMWeather SUNNY/HOTStatic Water Level 47.28Time 11:46:00

Totalizer:

End \_\_\_\_\_

Sounder ID **SOL 2**Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 155 1.5 233 2 311 2.5 389 3 464 3.5 542 4 620 4.5 698 5 776Pump Time: Start \_\_\_\_\_  
End \_\_\_\_\_Meters and Type:  YSI #1  YSI #2  YSI QSTotal (min) \_\_\_\_\_ Calibration Date: Aug 26, 2015

Parameters: (Stable within)

+/-0.1+/-3%+/-3%+/-10%+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	155	1158	7.86	1580	27.10	6.53	17.4	-	1.5
1.5	233								
2	311								
2.5	389								
3	464								
3.5	542								
4	620								
4.5	698								
5	776								

## Sampling:

Samples Collected by: Javier Montante Time Started: 11:54:00 Dup Time: N/A Time Ended: 11:58:00Transferred to: TWQL Relinquished by: Javier Montante Date Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail Sample

Comments:

BAIL SAMPLE.

LT

Correction factor -0.73

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAJLTD 160D (diameter) 5d factor 3.06Well Name **WR-445A**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel KV/JMWeather SUNNY/HOTStatic Water Level 57.86Time 10:45:00

Totalizer: End \_\_\_\_\_

Sounder ID SOL 2Start 0Total (gal) 0

Well Volumes (gallons): Discharge Rate(GPM) \_\_\_\_\_

1 104 1.5 156 2 208 2.5 260 3 313 3.5 365 4 417 4.5 469 5 521Pump Time: Start \_\_\_\_\_ Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_ Calibration Date: Aug 26, 2015Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	104	1058	8.16	1121	28.07	6.77	55.3	-	2.4
1.5	156								
2	208								
2.5	260								
3	313								
3.5	365								
4	417								
4.5	469								
5	521								

**Sampling:**Samples Collected by: Javier Montante Time Started: 10:51:00 Dup Time: N/A Time Ended: 10:56:00Transferred to: TWQL Relinquished by: Javier Montante Date Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: Single Bail Sample.

LT

Correction factor -0.53

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 199D (diameter) 5"d factor 3.06Well Name **WR-446A**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel KV/JMWeather SUNNY/HOTStatic Water Level 45.13Time 11:17:00

Totalizer: End \_\_\_\_\_

Sounder ID SOL 2Start 0Total (gal) 0

Well Volumes (gallons): Discharge Rate(GPM) \_\_\_\_\_

1 157 1.5 236 2 315 2.5 394 3 471 3.5 550 4 629 4.5 708 5 787Pump Time: Start \_\_\_\_\_ Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_ Calibration Date: Aug 26, 2015Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	157	1130	8.26	1147	27.62	7.25	23.1	-	1.2
1.5	236								
2	315								
2.5	394								
3	471								
3.5	550								
4	629								
4.5	708								
5	787								

**Sampling:**Samples Collected by: Javier Montante Time Started: 11:25:00 Dup Time: N/A Time Ended: 11:29:00Transferred to: TWQL Relinquished by: Javier Montante Date Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: BAIL SAMPLE. WELL IS MISSING CAP.

LT

Correction factor -0.58

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 100D (diameter) 5"d factor 3.06Well Name **WR-384A**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel **KV/JM**Weather SUNNY/WARMStatic Water Level 55.15Time 07:58:00

Totalizer:

Sounder ID SOL 2End Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) 1 46 1.5 69 2 92 2.5 115 3 137 3.5 160 4 183 4.5 206 5 229Pump Time: Start  Meters and Type:  YSI #1  YSI #2  YSI QSEnd Total (min)  Calibration Date: Aug 26, 2015Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	46	0835	7.29	6561	26.88	2.99	33.3	-	28.0
1.5	69								
2	92								
2.5	115								
3	137								
3.5	160								
4	183								
4.5	206								
5	229								

**Sampling:**Samples Collected by: Javier Montante Time Started: 08:28:00 Dup Time: 08:31:00 Time Ended: 08:34:00Transferred to: TWQL Relinquished by: Javier Montante Date Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: BAIL SAMPLE. LT

Correction factor -0.83

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 203D (diameter) 5d factor 3.06Well Name **WR-385A**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel KV/JMWeather SUNNY/WARMStatic Water Level 45.39Time 09:10:00

Totalizer:

End \_\_\_\_\_

Sounder ID SOL 2Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 161 1.5 242 2 323 2.5 404 3 482 3.5 563 4 644 4.5 725 5 806

Pump Time: Start \_\_\_\_\_ Meters and Type:  YSI #1  YSI #2  YSI QS  
 End \_\_\_\_\_  
 Total (min) \_\_\_\_\_ Calibration Date: Aug 26, 2015

Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	161	0930	8.33	3068	25.88	4.60	2.5	-	2.7
1.5	242								
2	323								
2.5	404								
3	482								
3.5	563								
4	644								
4.5	725								
5	806								

**Sampling:**Samples Collected by: Javier Montante Time Started: 09:26:00 Dup Time: N/A Time Ended: 09:29:00Transferred to: TWQL Relinquished by: Javier Montante Date: Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail Sample

Comments:

BAIL SAMPLE

LT

Correction factor -0.91

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 85D (diameter) 5d factor 3.06Well Name **WR-385B**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel KV/JMWeather SUNNY/CLEARStatic Water Level 46.85Time 09:38:00

Totalizer:

End \_\_\_\_\_

Sounder ID SOL 2Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 39 1.5 59 2 79 2.5 99 3 117 3.5 137 4 157 4.5 177 5 197

Pump Time: Start \_\_\_\_\_

Meters and Type:  YSI #1 YSI #2 YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_

Calibration Date: Aug 26, 2015

Parameters: (Stable within)

+/-0.1

+/-3%

+/-3%

+/-10%

+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	39	0953	8.07	2087	25.89	5.12	-1.9	-	6.3
1.5	59								
2	79								
2.5	99								
3	117								
3.5	137								
4	157								
4.5	177								
5	197								

## Sampling:

Samples Collected by: Javier Montante Time Started: 09:48:00 Dup Time: N/A Time Ended: 09:52:00Transferred to: TWQL Relinquished by: Javier Montante Date Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail Sample

Comments:

BAIL SAMPLE.

LT

Correction factor -0.53

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 55D (diameter) 5"d factor 3.06Well Name **WR-386A**Project **Tumamoc Landfill**Date Aug 26, 2015Field Personnel **KV/JM**Weather SUNNY/WARM

Static Water Level \_\_\_\_\_

Time \_\_\_\_\_

Totalizer: End \_\_\_\_\_

Sounder ID **SOL 2**Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0Pump Time: Start \_\_\_\_\_  
End \_\_\_\_\_Meters and Type:  YSI #1  YSI #2  YSI QS

Total (min) \_\_\_\_\_ Calibration Date: \_\_\_\_\_

Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0								
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

**Sampling:**Samples Collected by: **Javier Montante** Time Started: \_\_\_\_\_ Dup Time: \_\_\_\_\_ Time Ended: \_\_\_\_\_Transferred to: **TWQL** Relinquished by: **Javier Montante** Date: \_\_\_\_\_ Aug 26, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: **NO SAMPLE - WELL IS DRY AT 55.00FT.** LT

Correction factor -0.75

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 240D (diameter) 5d factor 3.06Well Name **WR-454A**Project **Tumamoc Landfill**Date Aug 27, 2015Field Personnel **GB/KV**Weather **SUNNY/WARM**Static Water Level 0.35Time 08:28:00Totalizer: End Sounder ID **SOL 2**Start 0Total (gal) 0Well Volumes (gallons): Discharge Rate(GPM) 1 244 1.5 366 2 488 2.5 610 3 733 3.5 855 4 977 4.5 1099 5 1221Pump Time: Start  Meters and Type:  YSI #1  YSI #2  YSI QSEnd Total (min)  Calibration Date: Aug 27, 2015Parameters: (Stable within) +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	244	0844	8.49	785	29.88	6.53	4.7	-	2.9
1.5	366								
2	488								
2.5	610								
3	733								
3.5	855								
4	977								
4.5	1099								
5	1221								

**Sampling:**Samples Collected by: George Bejarano Time Started: 08:38:00 Dup Time:  Time Ended: 08:43:00Transferred to: TWQL Relinquished by: George Bejarano Date Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: **BAIL SAMPLE. WATER NOT FLOWING FROM ARTESIAN WELL. WATER SLIGHTLY RUSTY.**

LT

Correction factor -0.44

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 230D (diameter) 5d factor 3.06Well Name **WR-448A**Project **Tumamoc Landfill**Date Aug 27, 2015Field Personnel **GB/KV**Weather SUNNY/HOTStatic Water Level 58.95Time 10:19:00

Totalizer:

Sounder ID SOL 2

End \_\_\_\_\_

Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 174 1.5 261 2 348 2.5 435 3 523 3.5 610 4 697 4.5 784 5 871

Pump Time: Start \_\_\_\_\_

Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_ Calibration Date: Aug 27, 2015

Parameters: (Stable within)

+/-0.1+/-3%+/-3%+/-10%+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	174	1035	8.14	4810	26.77	4.84	97.7	-	4.7
1.5	261								
2	348								
2.5	435								
3	523								
3.5	610								
4	697								
4.5	784								
5	871								

## Sampling:

Samples Collected by: George Bejarano Time Started: 10:30:00 Dup Time: \_\_\_\_\_ Time Ended: 10:34:00Transferred to: TWQL Relinquished by: George Bejarano Date: \_\_\_\_\_ Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: **BAIL SAMPLE.**

LT

Correction factor -0.83

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 93D (diameter) 5d factor 3.06Well Name **WR-448B**Project **Tumamoc Landfill**Date Aug 27, 2015Field Personnel **GB/KV**Weather SUNNY/HOTStatic Water Level 67.32Time 10:40:00

Totalizer:

Sounder ID **SOL 2**

End \_\_\_\_\_

Start 0Total (gal) 0

Well Volumes (gallons): Discharge Rate(GPM) \_\_\_\_\_

1 26 1.5 39 2 52 2.5 65 3 79 3.5 92 4 105 4.5 118 5 131Pump Time: Start \_\_\_\_\_ Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_ Calibration Date: Aug 27, 2015

Parameters: (Stable within) +/-.1 +/-.3% +/-.3% +/-.10% +/-.20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	26	1100	7.41	19994	27.56	3.43	-114.4	-	>100
1.5	39								
2	52								
2.5	65								
3	79								
3.5	92								
4	105								
4.5	118								
5	131								

**Sampling:**Samples Collected by: George Bejarano Time Started: 10:45:00 Dup Time: \_\_\_\_\_ Time Ended: 10:49:00Transferred to: TWQL Relinquished by: George Bejarano Date: \_\_\_\_\_ Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate  GAC Treatment  Grab Sample  Bail SampleComments: **BAIL SAMPLE. SMALL ROOTS, TURBID WATER. LOTS OF BUBBLES PRESENT IN SAMPLE.** LT

Correction factor -0.70



The logo for the City of Tucson Environmental Services Sampling Data Form. It features a circular seal on the left with the words "CITY OF TUCSON" around the top and "ARIZONA" at the bottom. Inside the circle is a stylized illustration of a landscape with mountains, water, and a sun. To the right of the seal, the words "CITY OF" are stacked vertically, and below them is a large, bold "TUCSON". Underneath "TUCSON" is a horizontal line, followed by the text "Environmental Services" and "Sampling Data Form" stacked vertically.

HP	BAIL
TD	200
meter)	5
factor	3.06

Well Name	<b>WR-449A</b>
Date	Aug 27, 2015
Weather	SUNNY/WARM

## Project Tumamoc Landfill

## Field Personnel      GB/KV

**Static Water Level** 60.07  
**Sounder ID** SOL 2

Time 09:26:00

Totalizer:	End	_____
	Start	0
	Total (gal)	0

### Well Volumes (gallons):

### Discharge Rate(GPM)

1    143    1.5    215    2    287    2.5    359    3    428    3.5    500    4    572    4.5    644    5    716

Pump Time: Start \_\_\_\_\_ End \_\_\_\_\_ Meters and Type:  YSI #1  YSI #2  YSI QS  
Total (min) \_\_\_\_\_ Calibration Date: Aug 27, 2015

**Parameters:** (Stable within)  $\pm 0.1$   $\pm 3\%$   $\pm 3\%$   $\pm 10\%$   $\pm 20 \text{ mV}$

Sampling:

Samples Collected by: George Bejarano Time Started: 09:31:00 Dup Time: Time Ended: 09:35:00

Transferred to: TWQL Relinquished by: George Bejarano Date Aug 27, 2015

Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation

Duplicate

### GAC Treatment

Grab Sample

Bail Sample

#### Comments:

BALI SAMPLE

1

Correction factor -0.38

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP	<u>BAIL</u>
TD	<u>100</u>
D (diameter)	<u>5</u>
d factor	<u>3.06</u>

Well Name **WR-454B**Project **Tumamoc Landfill**Date Aug 27, 2015

Field Personnel

**GB/KV**Weather **SUNNY/HOT**Static Water Level 13.52Time 08:50:00

Totalizer:

Sounder ID **SOL 2**

End \_\_\_\_\_

Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 88 1.5 132 2 176 2.5 220 3 265 3.5 309 4 353 4.5 397 5 441

Pump Time: Start \_\_\_\_\_

Meters and Type:  YSI #1 YSI #2 YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_

Calibration Date: Aug 27, 2015

Parameters: (Stable within)

+/-0.1+/-3%+/-3%+/-10%+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	88	0900	8.07	1776	27.50	4.83	-9.1	-	5.5
1.5	132								
2	176								
2.5	220								
3	265								
3.5	309								
4	353								
4.5	397								
5	441								

**Sampling:**Samples Collected by: George Bejarano Time Started: 08:55:00 Dup Time: \_\_\_\_\_ Time Ended: 08:59:00Transferred to: TWQL Relinquished by: George Bejarano Date Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail Sample

Comments:

BAIL SAMPLE.

LT

08/27/15 10:10

Correction factor -0.52

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 240D (diameter) 5d factor 3.06Well Name **WR-455A**Project **Tumamoc Landfill**Date Aug 27, 2015Field Personnel **GB/KV**Weather SUNNY/WARMStatic Water Level 23.07Time 07:30:00

Totalizer:

Sounder ID SOL 2

End \_\_\_\_\_

Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 221    1.5 332    2 443    2.5 554    3 664    3.5 775    4 886    4.5 997    5 1108

Pump Time: Start \_\_\_\_\_

Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_

Calibration Date: Aug 27, 2015

Parameters: (Stable within)

+/-0.1+/-3%+/-3%+/-10%+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu\text{S}/\text{cm}$ )	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	221	0754	7.53	921	25.97	7.25	-28.6	-	2.8
1.5	332								
2	443								
2.5	554								
3	664								
3.5	775								
4	886								
4.5	997								
5	1108								

## Sampling:

Samples Collected by: George Bejarano Time Started: 07:50:00 Dup Time: \_\_\_\_\_ Time Ended: 07:54:00Transferred to: TWQL Relinquished by: George Bejarano Date: \_\_\_\_\_ Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail Sample

Comments:

BAIL SAMPLE.

LT

Correction factor -0.49

**CITY OF  
TUCSON**  
Environmental Services  
Sampling Data Form

HP BAILTD 100D (diameter) 5d factor 3.06Well Name **WR-455B**Project **Tumamoc Landfill**Date Aug 27, 2015Field Personnel **GB/KV**Weather SUNNY/WARMStatic Water Level 24.35Time 08:00:00

Totalizer:

Sounder ID SOL 2

End \_\_\_\_\_

Start 0Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM) \_\_\_\_\_

1 77 1.5 116 2 155 2.5 194 3 231 3.5 270 4 309 4.5 348 5 387

Pump Time: Start \_\_\_\_\_

Meters and Type:  YSI #1  YSI #2  YSI QS

End \_\_\_\_\_

Total (min) \_\_\_\_\_

Calibration Date: Aug 27, 2015

Parameters: (Stable within)

+/-0.1+/-3%+/-3%+/-10%+/-20 mv

	Gallons	Time (hrs)	pH	SpC ( $\mu$ S/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	77	0815	7.87	926	26.57	5.74	18.9	-	3.6
1.5	116								
2	155								
2.5	194								
3	231								
3.5	270								
4	309								
4.5	348								
5	387								

## Sampling:

Samples Collected by: George Bejarano Time Started: 08:10:00 Dup Time: \_\_\_\_\_ Time Ended: 08:14:00Transferred to: TWQL Relinquished by: George Bejarano Date: Aug 27, 2015Reason for Sampling:  Monthly  Quarterly  Semi-Annual  Annual  Investigation Duplicate GAC Treatment Grab Sample Bail SampleComments: **BAIL SAMPLE.**

LT

KD.2015.08.0015

## **APPENDIX C**

**Duplicate Comparison Spreadsheet  
and Laboratory Analytical Reports  
for Groundwater Samples**

Appendix C  
Duplicate Comparison-Relative Percent Difference (RPD) -2015

**Appendix C**  
**Duplicate Comparison-Relative Percent Difference (RPD) -2015**

Tumamoc Landfill, Tucson Arizona

L151029-01	WR-384A	08/26/2015 08:28	TERT-BUTYLBENZENE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TERT-BUTYLBENZENE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TOLUENE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TOLUENE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TOTAL TRIHALOMETHANES	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TOTAL TRIHALOMETHANES	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TRANS-1,2-DICHLOROETHENE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TRANS-1,2-DICHLOROETHENE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TRANS-1,3-DICHLOROPROPENE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TRANS-1,3-DICHLOROPROPENE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TRICHLOROFLUOROMETHANE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	TRICHLOROFLUOROMETHANE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	VINYL CHLORIDE	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	VINYL CHLORIDE	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	XYLENES (TOTAL)	<	0.0005	L151029-02	WR-384A	08/26/2015 08:31	XYLENES (TOTAL)	<	0.0005	0.0%
L151029-01	WR-384A	08/26/2015 08:28	LEAD, TOTAL	<	0.002	L151029-02	WR-384A	08/26/2015 08:31	LEAD, TOTAL	<	0.002	0.0%
L151029-01	WR-384A	08/26/2015 08:28	NITRITE AS N	<	0.1	L151029-02	WR-384A	08/26/2015 08:31	NITRITE AS N	<	0.1	0.0%
L151029-01	WR-384A	08/26/2015 08:28	NITRATE AS N	<	0.25	L151029-02	WR-384A	08/26/2015 08:31	NITRATE AS N	<	0.25	0.0%
L151029-01	WR-384A	08/26/2015 08:28	TETRACHLOROETHENE	0.0027	L151029-02	WR-384A	08/26/2015 08:31	TETRACHLOROETHENE	0.0029	7.1%		
L151029-01	WR-384A	08/26/2015 08:28	TRICHLOROETHENE	0.0084	L151029-02	WR-384A	08/26/2015 08:31	TRICHLOROETHENE	0.0093	10.2%		
L151029-01	WR-384A	08/26/2015 08:28	ARSENIC, TOTAL	0.0267	L151029-02	WR-384A	08/26/2015 08:31	ARSENIC, TOTAL	0.0201	28.2%		
L151029-01	WR-384A	08/26/2015 08:28	BARIUM, TOTAL	0.128	L151029-02	WR-384A	08/26/2015 08:31	BARIUM, TOTAL	0.106	18.8%		
L151029-01	WR-384A	08/26/2015 08:28	ORTHO PHOSPHATE AS P	0.481	L151029-02	WR-384A	08/26/2015 08:31	ORTHO PHOSPHATE AS P	0.536	10.8%		
L151029-01	WR-384A	08/26/2015 08:28	TOTAL ORGANIC CARBON	1.23	L151029-02	WR-384A	08/26/2015 08:31	TOTAL ORGANIC CARBON	1.53	21.7%		
L151029-01	WR-384A	08/26/2015 08:28	FLUORIDE	1.42	L151029-02	WR-384A	08/26/2015 08:31	FLUORIDE	1.41	-0.7%		
L151029-01	WR-384A	08/26/2015 08:28	SODIUM, TOTAL	1290	L151029-02	WR-384A	08/26/2015 08:31	SODIUM, TOTAL	1290	0.0%		
L151029-01	WR-384A	08/26/2015 08:28	CHLORIDE	1460	L151029-02	WR-384A	08/26/2015 08:31	CHLORIDE	1460	0.0%		
<b>L151029-01</b>	<b>WR-384A</b>	<b>08/26/2015 08:28</b>	<b>MANGANESE, TOTAL</b>	<b>2.11</b>	<b>L151029-02</b>	<b>WR-384A</b>	<b>08/26/2015 08:31</b>	<b>MANGANESE, TOTAL</b>	<b>1.23</b>	<b>52.7%</b>		
L151029-01	WR-384A	08/26/2015 08:28	TOTAL DISSOLVED SOLIDS	3980	L151029-02	WR-384A	08/26/2015 08:31	TOTAL DISSOLVED SOLIDS	3890	2.3%		
L151029-01	WR-384A	08/26/2015 08:28	POTASSIUM, TOTAL	4.27	L151029-02	WR-384A	08/26/2015 08:31	POTASSIUM, TOTAL	4.27	0.0%		
<b>L151029-01</b>	<b>WR-384A</b>	<b>08/26/2015 08:28</b>	<b>IRON, TOTAL</b>	<b>4.74</b>	<b>L151029-02</b>	<b>WR-384A</b>	<b>08/26/2015 08:31</b>	<b>IRON, TOTAL</b>	<b>3.38</b>	<b>33.5%</b>		
L151029-01	WR-384A	08/26/2015 08:28	MAGNESIUM, TOTAL	40.9	L151029-02	WR-384A	08/26/2015 08:31	MAGNESIUM, TOTAL	41.3	1.0%		
L151029-01	WR-384A	08/26/2015 08:28	ALKALINITY, BICARBONATE	557	L151029-02	WR-384A	08/26/2015 08:31	ALKALINITY, BICARBONATE	579	3.9%		
L151029-01	WR-384A	08/26/2015 08:28	ALKALINITY, TOTAL	557	L151029-02	WR-384A	08/26/2015 08:31	ALKALINITY, TOTAL	579	3.9%		
L151029-01	WR-384A	08/26/2015 08:28	SULFATE	615	L151029-02	WR-384A	08/26/2015 08:31	SULFATE	609	1.0%		
L151029-01	WR-384A	08/26/2015 08:28	CALCIUM, TOTAL	69.6	L151029-02	WR-384A	08/26/2015 08:31	CALCIUM, TOTAL	70.5	1.3%		
L151029-01	WR-384A	08/26/2015 08:28	BROMIDE	9.36	L151029-02	WR-384A	08/26/2015 08:31	BROMIDE	9.14	2.4%		



4401 S. Tucson Estates Parkway  
Tucson, Arizona 85735  
520.791.2544 Phone  
520.791.5260 Fax

24 September 2015

Arturo Burgos  
Environmental Services  
  
Tucson, AZ 85735  
RE: Tumamoc Landfill

Enclosed are the results for Work Order L151029, received by the laboratory on 08/26/2015 13:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michael E. Dew  
Lab Manager

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WR-384A	L151029-01	Aqueous	08/26/2015 08:28	08/26/2015 13:20
WR-384A	L151029-02	Aqueous	08/26/2015 08:31	08/26/2015 13:20
WR-385A	L151029-03	Aqueous	08/26/2015 09:26	08/26/2015 13:20
WR-385B	L151029-04	Aqueous	08/26/2015 09:48	08/26/2015 13:20
WR-445A	L151029-05	Aqueous	08/26/2015 10:51	08/26/2015 13:20
WR-446A	L151029-06	Aqueous	08/26/2015 11:25	08/26/2015 13:20
WR-447A	L151029-07	Aqueous	08/26/2015 11:54	08/26/2015 13:20
TRIP BLANK	L151029-08	Aqueous	08/26/2015 08:28	08/26/2015 13:20

All QC results were within QC limits unless otherwise noted.

Styrene was flagged with the "M2" and "R9" data qualifiers for L151029-01 (WR-384A). Please see page 81 of the report for Notes and Definitions.

Tucson Water Quality Laboratory

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Michael E. Dew, Lab Manager

Page 2 of 83

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**WR-384A**  
**L151029-01 (Aqueous)**

**Sampled:**  
 08/26/2015 8:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**  
**L151029-01 (Aqueous)**

Sampled:  
 08/26/2015 8:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**  
**L151029-01 (Aqueous)**

Sampled:

08/26/2015 8:28

Analyte	Reporting						Method	Notes
	Result	Limit	Units	Dilution	Batch	Prepared		

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	<b>0.0027</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	<b>0.0084</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLENES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>		95 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>		104 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>		103 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-384A**  
**L151029-01 (Aqueous)**

Sampled:  
 08/26/2015 8:28

Analyte	Result	Reporting			Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.128	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	69.6	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	4.74	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	40.9	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	4.27	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	0.0267	0.00200	mg/L	2	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00200	mg/L	2	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	557	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	557	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
FLUORIDE	1.42	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRATE AS N	ND	0.250	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	0.481	0.200	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	3980	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	1.23	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-384A**

**L151029-01RE1 (Aqueous)**

**Sampled:**

08/26/2015 8:28

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

MANGANESE	<b>2.11</b>	0.200	mg/L	10	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	<b>1290</b>	20.0	mg/L	10	BI50202	08/31/2015	09/01/2015	EPA 200.7

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**

**L151029-01RE2 (Aqueous)**

**Sampled:**

08/26/2015 8:28

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
		Limit	Units	Dilution					

**Tucson Water Quality Laboratory**

**Wet Chemistry**

BROMIDE	9.36	2.50	mg/L	25	BI51102	09/10/2015	09/10/2015	EPA 300.0
CHLORIDE	1460	75.0	mg/L	25	BI51102	09/10/2015	09/10/2015	EPA 300.0
SULFATE	615	125	mg/L	25	BI51102	09/10/2015	09/10/2015	EPA 300.0

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**WR-384A**  
**L151029-02 (Aqueous)**

Sampled:  
08/26/2015 8:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	0.066	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-384A**  
**L151029-02 (Aqueous)**

Sampled:  
 08/26/2015 8:31

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**  
**L151029-02 (Aqueous)**

Sampled:  
 08/26/2015 8:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<b>TETRACHLOROETHENE</b>	<b>0.0029</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<b>TRICHLOROETHENE</b>	<b>0.0093</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	90 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	107 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	101 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**  
**L151029-02 (Aqueous)**

Sampled:  
 08/26/2015 8:31

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.106	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	70.5	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	3.38	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	41.3	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	1.23	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	4.27	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	0.0201	0.00200	mg/L	2	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00200	mg/L	2	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	579	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	579	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
FLUORIDE	1.41	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRATE AS N	ND	0.250	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	0.536	0.200	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	3890	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	1.53	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-384A**

**L151029-02RE1 (Aqueous)**

**Sampled:**

08/26/2015 8:31

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

<b>SODIUM</b>	<b>1290</b>	20.0	mg/L	10	B150202	08/31/2015	09/01/2015	EPA 200.7
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**Wet Chemistry**

<b>BROMIDE</b>	<b>9.14</b>	2.50	mg/L	25	BH52704	08/26/2015	08/26/2015	EPA 300.0
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<b>CHLORIDE</b>	<b>1460</b>	75.0	mg/L	25	BH52704	08/26/2015	08/26/2015	EPA 300.0
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<b>SULFATE</b>	<b>609</b>	125	mg/L	25	BH52704	08/26/2015	08/26/2015	EPA 300.0
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-385A**  
**L151029-03 (Aqueous)**

Sampled:  
 08/26/2015 9:26

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385A**  
**L151029-03 (Aqueous)**

Sampled:

08/26/2015 9:26

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385A**  
**L151029-03 (Aqueous)**

Sampled:  
 08/26/2015 9:26

Analyte	Reporting		Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result									

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	90 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	105 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	100 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**WR-385A**  
**L151029-03 (Aqueous)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0243</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>33.7</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>0.0352</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>6.30</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	<b>ND</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>2.65</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.00839</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	<b>ND</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>92.9</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>92.9</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>4.50</b>	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
FLUORIDE	<b>0.812</b>	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRATE AS N	<b>1.57</b>	0.250	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	<b>ND</b>	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	<b>ND</b>	0.200	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>1800</b>	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>0.42</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

WR-385A

L151029-03RE1 (Aqueous)

Sampled:

08/26/2015 9:26

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

SODIUM 605 10.0 mg/L 5 B150202 08/31/2015 09/01/2015 EPA 200.7

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	<b>Reported:</b>
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385A**

**L151029-03RE2 (Aqueous)**

**Sampled:**

08/26/2015 9:26

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Wet Chemistry**

<b>CHLORIDE</b>	<b>577</b>	30.0	mg/L	10	BH52704	08/27/2015	08/27/2015	EPA 300.0
<b>SULFATE</b>	<b>546</b>	50.0	mg/L	10	BH52704	08/27/2015	08/27/2015	EPA 300.0

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385B**

**L151029-04 (Aqueous)**

**Sampled:**

08/26/2015 9:48

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	0.25	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385B**  
**L151029-04 (Aqueous)**

Sampled:  
 08/26/2015 9:48

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385B**  
**L151029-04 (Aqueous)**

Sampled:  
 08/26/2015 9:48

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLENES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>		91 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>		105 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>		102 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-385B**  
**L151029-04 (Aqueous)**

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
		Limit	Units	Dilution					

**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.0372	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	8.80	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	0.184	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	5.60	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	1.35	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	0.0146	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	773	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, CARBONATE	26.8	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	800	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
BROMIDE	0.308	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
CHLORIDE	32.9	3.00	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
FLUORIDE	2.26	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRATE AS N	1.30	0.250	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	1310	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	0.51	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-385B**

**L151029-04RE1 (Aqueous)**

Sampled:

08/26/2015 9:48

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

**SODIUM**                   **506**                   10.0 mg/L           5           BI50202           08/31/2015           09/01/2015           EPA 200.7

**Wet Chemistry**

**SULFATE**                   **256**                   25.0 mg/L           5           BH52704           08/26/2015           08/26/2015           EPA 300.0

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**WR-445A**  
**L151029-05 (Aqueous)**

**Sampled:**  
 08/26/2015 10:51

Analyte	Result	Reporting				Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**WR-445A**  
**L151029-05 (Aqueous)**

Sampled:  
08/26/2015 10:51

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<b>CHLOROFORM</b>	<b>0.0006</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-445A**  
**L151029-05 (Aqueous)**

Sampled:  
 08/26/2015 10:51

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	<b>0.0031</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<b>TOTAL TRIHALOMETHANES</b>	<b>0.0006</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLENES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	91 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	108 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	99 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-445A**

**L151029-05 (Aqueous)**

**Sampled:**

08/26/2015 10:51

Analyte	Result	Reporting			Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.0869	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	41.8	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	0.0208	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	26.1	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	118	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	0.0153	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	220	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	220	20.0	mg/L as CaCO <sub>3</sub>	1	BI50104	08/31/2015	08/31/2015	SM 2320B
BROMIDE	1.02	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
CHLORIDE	113	3.00	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
FLUORIDE	1.09	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
SULFATE	90.1	5.00	mg/L	1	BH52704	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	658	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	0.73	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-445A**

**L151029-05RE1 (Aqueous)**

**Sampled:**

08/26/2015 10:51

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

POTASSIUM	47.3	2.50	mg/L	5	BI50202	08/31/2015	09/01/2015	EPA 200.7
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**Wet Chemistry**

NITRATE AS N	14.5	1.25	mg/L	5	BH52704	08/26/2015	08/26/2015	EPA 300.0
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-446A**

**L151029-06 (Aqueous)**

**Sampled:**

08/26/2015 11:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-446A**  
**L151029-06 (Aqueous)**

**Sampled:**  
 08/26/2015 11:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-446A**

**L151029-06 (Aqueous)**

**Sampled:**

08/26/2015 11:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>		90 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>		106 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>		99 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-446A**  
**L151029-06 (Aqueous)**

**Sampled:**

08/26/2015 11:25

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.0771	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	24.8	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	0.0916	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	22.1	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	10.9	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	195	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

LEAD	ND	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
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**Wet Chemistry**

ALKALINITY, BICARBONATE	298	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	298	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	0.512	0.100	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
CHLORIDE	80.5	3.00	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
FLUORIDE	1.20	0.100	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
NITRATE AS N	8.82	0.250	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
SULFATE	146	5.00	mg/L	1	BH52705	08/26/2015	08/26/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	737	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	1.09	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-446A**

**L151029-06RE1 (Aqueous)**

Sampled:

08/26/2015 11:25

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICPMS**

ARSENIC                    0.0278                    0.00500 mg/L                    5                    B150209                    08/31/2015                    09/02/2015                    EPA 200.8

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-447A**

**L151029-07 (Aqueous)**

**Sampled:**

08/26/2015 11:54

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	<b>Reported:</b>
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-447A**  
**L151029-07 (Aqueous)**

**Sampled:**  
 08/26/2015 11:54

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<b>CHLOROFORM</b>	<b>0.0010</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<b>DICHLORODIFLUOROMETHANE</b>	<b>0.0005</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-447A**

**L151029-07 (Aqueous)**

**Sampled:**

08/26/2015 11:54

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	<b>0.0019</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<b>TOTAL TRIHALOMETHANES</b>	<b>0.0010</b>	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	88 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	105 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	97 %	70-130			BH52706	08/26/2015	08/26/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-447A**

**L151029-07 (Aqueous)**

**Sampled:**

08/26/2015 11:54

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0896</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>39.2</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>0.242</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>21.1</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>10.3</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.00970</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	<b>0.00192</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>246</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>246</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>2.39</b>	0.100	mg/L	1	BH52705	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>1.34</b>	0.100	mg/L	1	BH52705	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52705	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52705	08/27/2015	08/27/2015	EPA 300.0
SULFATE	<b>113</b>	5.00	mg/L	1	BH52705	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>931</b>	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>0.58</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

**WR-447A**

**L151029-07RE1 (Aqueous)**

**Sampled:**

08/26/2015 11:54

Analyte	Result	Reporting			Batch	Prepared	Analyzed	Method	Notes
		Limit	Units	Dilution					

**Tucson Water Quality Laboratory**

**Total Metals by ICP**

<b>SODIUM</b>	<b>259</b>	4.00	mg/L	2	B150202	08/31/2015	09/01/2015	EPA 200.7
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**Wet Chemistry**

<b>CHLORIDE</b>	<b>208</b>	15.0	mg/L	5	BH52705	08/27/2015	08/27/2015	EPA 300.0
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<b>NITRATE AS N</b>	<b>25.9</b>	1.25	mg/L	5	BH52705	08/27/2015	08/27/2015	EPA 300.0
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

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**L151029-08 (Aqueous)**

**Sampled:**

08/26/2015 8:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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L151029-08 (Aqueous)

Sampled:  
08/26/2015 8:28

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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### Tucson Water Quality Laboratory

#### Volatile Organic Compounds by GC/MS

BENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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**L151029-08 (Aqueous)**

**Sampled:**

08/26/2015 8:28

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

NAPHTHALENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>		91 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>		106 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>		100 %	70-130		BH52706	08/26/2015	08/26/2015	EPA 8260B

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52706-BLK1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHENE	ND	0.0005	mg/L							
1,1-DICHLOROPROPENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L							
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L							
1,2-DICHLOROBENZENE	ND	0.0005	mg/L							
1,2-DICHLOROETHANE	ND	0.0005	mg/L							
1,2-DICHLOROPROPANE	ND	0.0005	mg/L							
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROPROPANE	ND	0.0005	mg/L							
1,4-DICHLOROBENZENE	ND	0.0005	mg/L							
2,2-DICHLOROPROPANE	ND	0.0005	mg/L							
2-CHLOROTOLUENE	ND	0.0005	mg/L							
4-CHLOROTOLUENE	ND	0.0005	mg/L							
4-ISOPROPYLtoluene	ND	0.0005	mg/L							
BENZENE	ND	0.0005	mg/L							
BROMOBENZENE	ND	0.0005	mg/L							

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52706-BLK1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE										
BROMODICHLOROMETHANE	ND	0.0005	mg/L							
BROMOFORM	ND	0.0005	mg/L							
BROMOMETHANE	ND	0.0005	mg/L							
CARBON TETRACHLORIDE	ND	0.0005	mg/L							
CHLOROBENZENE	ND	0.0005	mg/L							
CHLOROETHANE	ND	0.0005	mg/L							
CHLOROFORM	ND	0.0005	mg/L							
CHLOROMETHANE	ND	0.0005	mg/L							
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L							
DIBROMOMETHANE	ND	0.0005	mg/L							
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L							
DICHLOROMETHANE	ND	0.0005	mg/L							
ETHYLBENZENE	ND	0.0005	mg/L							
ETHYLENE DIBROMIDE	ND	0.0005	mg/L							
HEXACHLOROBUTADIENE	ND	0.0005	mg/L							
ISOPROPYLBENZENE	ND	0.0005	mg/L							
M/P-XYLENES	ND	0.0005	mg/L							
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L							
NAPHTHALENE	ND	0.0005	mg/L							
N-BUTYLBENZENE	ND	0.0005	mg/L							
N-PROPYLBENZENE	ND	0.0005	mg/L							
ORTHO-XYLENE	ND	0.0005	mg/L							
SEC-BUTYLBENZENE	ND	0.0005	mg/L							

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52706-BLK1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
STYRENE	ND	0.0005	mg/L							
TERT-BUTYLBENZENE	ND	0.0005	mg/L							
TETRACHLOROETHENE	ND	0.0005	mg/L							
TOLUENE	ND	0.0005	mg/L							
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L							
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
TRICHLOROETHENE	ND	0.0005	mg/L							
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L							
VINYL CHLORIDE	ND	0.0005	mg/L							
XYLEMES (TOTAL)	ND	0.0005	mg/L							
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	4.61		ug/L	5.00		92	70-130			
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.11		ug/L	5.00		102	70-130			
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.00		ug/L	5.00		100	70-130			

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>LCS (BH52706-BS1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.89		ug/L	5.00		98	70-130			
1,1,1-TRICHLOROETHANE	5.11		ug/L	5.00		102	70-130			
1,1,2,2-TETRACHLOROETHANE	4.77		ug/L	5.00		95	70-130			
1,1,2-TRICHLOROETHANE	5.36		ug/L	5.00		107	70-130			
1,1-DICHLOROETHANE	5.28		ug/L	5.00		106	70-130			
1,1-DICHLOROETHENE	5.59		ug/L	5.00		112	70-130			
1,1-DICHLOROPROPENE	5.38		ug/L	5.00		108	70-130			
1,2,3-TRICHLOROBENZENE	4.39		ug/L	5.00		88	70-130			
1,2,3-TRICHLOROPROPANE	4.61		ug/L	5.00		92	70-130			
1,2,4-TRICHLOROBENZENE	4.31		ug/L	5.00		86	70-130			
1,2,4-TRIMETHYLBENZENE	4.55		ug/L	5.00		91	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	4.64		ug/L	5.00		93	70-130			
1,2-DICHLOROBENZENE	4.61		ug/L	5.00		92	70-130			
1,2-DICHLOROETHANE	5.21		ug/L	5.00		104	70-130			
1,2-DICHLOROPROPANE	5.18		ug/L	5.00		104	70-130			
1,3,5-TRIMETHYLBENZENE	4.42		ug/L	5.00		88	70-130			
1,3-DICHLOROBENZENE	4.75		ug/L	5.00		95	70-130			
1,3-DICHLOROPROPANE	4.97		ug/L	5.00		99	70-130			
1,4-DICHLOROBENZENE	4.61		ug/L	5.00		92	70-130			
2,2-DICHLOROPROPANE	5.31		ug/L	5.00		106	70-130			
2-CHLOROTOLUENE	4.73		ug/L	5.00		95	70-130			
4-CHLOROTOLUENE	4.70		ug/L	5.00		94	70-130			
4-ISOPROPYLtoluene	4.49		ug/L	5.00		90	70-130			
BENZENE	5.00		ug/L	5.00		100	70-130			
BROMOBENZENE	4.58		ug/L	5.00		92	70-130			

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes	
<b>LCS (BH52706-BS1)</b>		Prepared & Analyzed: 08/26/2015									
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>											
BROMOCHLOROMETHANE	5.23		ug/L	5.00		105	70-130				
BROMODICHLOROMETHANE	4.85		ug/L	5.00		97	70-130				
BROMOFORM	4.94		ug/L	5.00		99	70-130				
BROMOMETHANE	4.70		ug/L	5.00		94	70-130				
CARBON TETRACHLORIDE	5.12		ug/L	5.00		102	70-130				
CHLOROBENZENE	4.70		ug/L	5.00		94	70-130				
CHLOROETHANE	5.49		ug/L	5.00		110	70-130				
CHLOROFORM	5.07		ug/L	5.00		101	70-130				
CHLOROMETHANE	4.16		ug/L	5.00		83	70-130				
CIS-1,2-DICHLOROETHENE	5.10		ug/L	5.00		102	70-130				
CIS-1,3-DICHLOROPROPENE	5.18		ug/L	5.00		104	70-130				
DIBROMOCHLOROMETHANE	5.41		ug/L	5.00		108	70-130				
DI(BROMOMETHANE)	5.32		ug/L	5.00		106	70-130				
DICHLORODIFLUOROMETHANE	4.38		ug/L	5.00		88	70-130				
DICHLOROMETHANE	5.03		ug/L	5.00		101	70-130				
ETHYLBENZENE	4.34		ug/L	5.00		87	70-130				
ETHYLENE DIBROMIDE	5.20		ug/L	5.00		104	70-130				
HEXACHLOROBUTADIENE	4.65		ug/L	5.00		93	70-130				
ISOPROPYLBENZENE	4.63		ug/L	5.00		93	70-130				
M/P-XYLENES	9.34		ug/L	10.0		93	70-130				
METHYL-TERT-BUTYL ETHER	5.15		ug/L	5.00		103	70-130				
NAPHTHALENE	4.37		ug/L	5.00		87	70-130				
N-BUTYLBENZENE	4.44		ug/L	5.00		89	70-130				
N-PROPYLBENZENE	4.73		ug/L	5.00		95	70-130				
ORTHO-XYLENE	4.65		ug/L	5.00		93	70-130				
SEC-BUTYLBENZENE	4.75		ug/L	5.00		95	70-130				

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>LCS (BH52706-BS1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
STYRENE	4.58		ug/L	5.00	92	70-130				
TERT-BUTYLBENZENE	4.51		ug/L	5.00	90	70-130				
TETRACHLOROETHENE	5.03		ug/L	5.00	101	70-130				
TOLUENE	4.98		ug/L	5.00	100	70-130				
TRANS-1,2-DICHLOROETHENE	5.10		ug/L	5.00	102	70-130				
TRANS-1,3-DICHLOROPROPENE	5.96		ug/L	5.00	119	70-130				
TRICHLOROETHENE	5.26		ug/L	5.00	105	70-130				
TRICHLOROFLUOROMETHANE	5.69		ug/L	5.00	114	70-130				
VINYL CHLORIDE	4.47		ug/L	5.00	89	70-130				
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.04		ug/L	5.00	101	70-130				
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.24		ug/L	5.00	105	70-130				
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.06		ug/L	5.00	101	70-130				

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike (BH52706-MS1)</b>										
<b>Source: L151029-01</b>										
<b>Prepared &amp; Analyzed: 08/26/2015</b>										
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.83		ug/L	5.00	ND	97	70-130			
1,1,1-TRICHLOROETHANE	5.44		ug/L	5.00	ND	109	70-130			
1,1,2,2-TETRACHLOROETHANE	4.65		ug/L	5.00	ND	93	70-130			
1,1,2-TRICHLOROETHANE	5.26		ug/L	5.00	ND	105	70-130			
1,1-DICHLOROETHANE	5.50		ug/L	5.00	ND	110	70-130			
1,1-DICHLOROETHENE	5.70		ug/L	5.00	ND	114	70-130			
1,1-DICHLOROPROPENE	5.49		ug/L	5.00	ND	110	70-130			
1,2,3-TRICHLOROBENZENE	4.25		ug/L	5.00	ND	85	70-130			
1,2,3-TRICHLOROPROPANE	4.56		ug/L	5.00	ND	91	70-130			
1,2,4-TRICHLOROBENZENE	4.15		ug/L	5.00	ND	83	70-130			
1,2,4-TRIMETHYLBENZENE	4.66		ug/L	5.00	ND	93	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	4.43		ug/L	5.00	ND	89	70-130			
1,2-DICHLOROBENZENE	4.50		ug/L	5.00	ND	90	70-130			
1,2-DICHLOROETHANE	5.19		ug/L	5.00	ND	104	70-130			
1,2-DICHLOROPROPANE	5.02		ug/L	5.00	ND	100	70-130			
1,3,5-TRIMETHYLBENZENE	4.57		ug/L	5.00	ND	91	70-130			
1,3-DICHLOROBENZENE	4.83		ug/L	5.00	ND	97	70-130			
1,3-DICHLOROPROPANE	4.78		ug/L	5.00	ND	96	70-130			
1,4-DICHLOROBENZENE	4.54		ug/L	5.00	ND	91	70-130			
2,2-DICHLOROPROPANE	5.45		ug/L	5.00	ND	109	70-130			
2-CHLOROTOLUENE	4.75		ug/L	5.00	ND	95	70-130			
4-CHLOROTOLUENE	4.71		ug/L	5.00	ND	94	70-130			
4-ISOPROPYLtoluene	4.54		ug/L	5.00	ND	91	70-130			
BENZENE	5.23		ug/L	5.00	ND	105	70-130			
BROMOBENZENE	4.61		ug/L	5.00	ND	92	70-130			

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (BH52706-MS1)</b>		<b>Source: L151029-01</b>				Prepared & Analyzed: 08/26/2015			
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>									
BROMOCHLOROMETHANE	4.99		ug/L	5.00	ND	100	70-130		
BROMODICHLOROMETHANE	4.90		ug/L	5.00	ND	98	70-130		
BROMOFORM	4.46		ug/L	5.00	ND	89	70-130		
BROMOMETHANE	5.68		ug/L	5.00	ND	114	70-130		
CARBON TETRACHLORIDE	5.24		ug/L	5.00	ND	105	70-130		
CHLOROBENZENE	4.70		ug/L	5.00	ND	94	70-130		
CHLOROETHANE	6.14		ug/L	5.00	ND	123	70-130		
CHLOROFORM	5.37		ug/L	5.00	ND	107	70-130		
CHLOROMETHANE	4.38		ug/L	5.00	ND	88	70-130		
CIS-1,2-DICHLOROETHENE	5.54		ug/L	5.00	ND	111	70-130		
CIS-1,3-DICHLOROPROPENE	5.17		ug/L	5.00	ND	103	70-130		
DIBROMOCHLOROMETHANE	5.04		ug/L	5.00	ND	101	70-130		
DIBROMOMETHANE	5.08		ug/L	5.00	ND	102	70-130		
DICHLORODIFLUOROMETHANE	4.55		ug/L	5.00	ND	91	70-130		
DICHLOROMETHANE	5.32		ug/L	5.00	ND	106	70-130		
ETHYLBENZENE	4.48		ug/L	5.00	ND	90	70-130		
ETHYLENE DIBROMIDE	4.98		ug/L	5.00	ND	100	70-130		
HEXACHLOROBUTADIENE	4.66		ug/L	5.00	ND	93	70-130		
ISOPROPYLBENZENE	4.74		ug/L	5.00	ND	95	70-130		
M/P-XYLENES	9.57		ug/L	10.0	ND	96	70-130		
METHYL-TERT-BUTYL ETHER	5.13		ug/L	5.00	ND	103	70-130		
NAPHTHALENE	4.26		ug/L	5.00	ND	85	70-130		
N-BUTYLBENZENE	4.45		ug/L	5.00	ND	89	70-130		
N-PROPYLBENZENE	4.85		ug/L	5.00	ND	97	70-130		
ORTHO-XYLENE	4.62		ug/L	5.00	ND	92	70-130		
SEC-BUTYLBENZENE	4.85		ug/L	5.00	ND	97	70-130		

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (BH52706-MS1)</b>									
Source: L151029-01 Prepared & Analyzed: 08/26/2015									
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>									
STYRENE	1.54		ug/L	5.00	ND	31	70-130		M2, R9
TERT-BUTYLBENZENE	4.77		ug/L	5.00	ND	95	70-130		
TETRACHLOROETHENE	7.75		ug/L	5.00	2.73	100	70-130		
TOLUENE	4.97		ug/L	5.00	ND	99	70-130		
TRANS-1,2-DICHLOROETHENE	5.35		ug/L	5.00	ND	107	70-130		
TRANS-1,3-DICHLOROPROPENE	5.84		ug/L	5.00	ND	117	70-130		
TRICHLOROETHENE	13.2		ug/L	5.00	8.37	97	70-130		
TRICHLOROFLUOROMETHANE	5.94		ug/L	5.00	ND	119	70-130		
VINYL CHLORIDE	4.69		ug/L	5.00	ND	94	70-130		
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.13		ug/L	5.00		103	70-130		
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.52		ug/L	5.00		110	70-130		
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	4.99		ug/L	5.00		100	70-130		

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike Dup (BH52706-MSD1)</b>									
<b>Source: L151029-01</b>									
<b>Prepared &amp; Analyzed: 08/26/2015</b>									
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>									
1,1,1,2-TETRACHLOROETHANE	4.77		ug/L	5.00	ND	95	70-130	1	20
1,1,1-TRICHLOROETHANE	5.13		ug/L	5.00	ND	103	70-130	6	20
1,1,2,2-TETRACHLOROETHANE	4.59		ug/L	5.00	ND	92	70-130	1	20
1,1,2-TRICHLOROETHANE	5.20		ug/L	5.00	ND	104	70-130	1	20
1,1-DICHLOROETHANE	5.22		ug/L	5.00	ND	104	70-130	5	20
1,1-DICHLOROETHENE	5.67		ug/L	5.00	ND	113	70-130	0.5	20
1,1-DICHLOROPROPENE	5.26		ug/L	5.00	ND	105	70-130	4	20
1,2,3-TRICHLOROBENZENE	4.27		ug/L	5.00	ND	85	70-130	0.5	20
1,2,3-TRICHLOROPROPANE	4.89		ug/L	5.00	ND	98	70-130	7	20
1,2,4-TRICHLOROBENZENE	4.18		ug/L	5.00	ND	84	70-130	0.7	20
1,2,4-TRIMETHYLBENZENE	4.50		ug/L	5.00	ND	90	70-130	3	20
1,2-DIBROMO-3-CHLOROPROPANE	4.61		ug/L	5.00	ND	92	70-130	4	20
1,2-DICHLOROBENZENE	4.55		ug/L	5.00	ND	91	70-130	1	20
1,2-DICHLOROETHANE	5.07		ug/L	5.00	ND	101	70-130	2	20
1,2-DICHLOROPROPANE	5.04		ug/L	5.00	ND	101	70-130	0.4	20
1,3,5-TRIMETHYLBENZENE	4.42		ug/L	5.00	ND	88	70-130	3	20
1,3-DICHLOROBENZENE	4.62		ug/L	5.00	ND	92	70-130	4	20
1,3-DICHLOROPROPANE	4.84		ug/L	5.00	ND	97	70-130	1	20
1,4-DICHLOROBENZENE	4.51		ug/L	5.00	ND	90	70-130	0.7	20
2,2-DICHLOROPROPANE	5.38		ug/L	5.00	ND	108	70-130	1	20
2-CHLOROTOLUENE	4.52		ug/L	5.00	ND	90	70-130	5	20
4-CHLOROTOLUENE	4.66		ug/L	5.00	ND	93	70-130	1	20
4-ISOPROPYLtoluene	4.48		ug/L	5.00	ND	90	70-130	1	20
BENZENE	5.09		ug/L	5.00	ND	102	70-130	3	20
BROMOBENZENE	4.43		ug/L	5.00	ND	89	70-130	4	20

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BH52706-MSD1)</b>										
<b>Source: L151029-01</b>										
<b>Prepared &amp; Analyzed: 08/26/2015</b>										
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE	4.84		ug/L	5.00	ND	97	70-130	3	20	
BROMODICHLOROMETHANE	4.90		ug/L	5.00	ND	98	70-130	0	20	
BROMOFORM	4.43		ug/L	5.00	ND	89	70-130	0.7	20	
BROMOMETHANE	4.91		ug/L	5.00	ND	98	70-130	15	20	
CARBON TETRACHLORIDE	5.06		ug/L	5.00	ND	101	70-130	3	20	
CHLOROBENZENE	4.61		ug/L	5.00	ND	92	70-130	2	20	
CHLOROETHANE	5.59		ug/L	5.00	ND	112	70-130	9	20	
CHLOROFORM	5.16		ug/L	5.00	ND	103	70-130	4	20	
CHLOROMETHANE	4.09		ug/L	5.00	ND	82	70-130	7	20	
CIS-1,2-DICHLOROETHENE	5.28		ug/L	5.00	ND	106	70-130	5	20	
CIS-1,3-DICHLOROPROPENE	5.18		ug/L	5.00	ND	104	70-130	0.2	20	
DIBROMOCHLOROMETHANE	5.24		ug/L	5.00	ND	105	70-130	4	20	
DIBROMOMETHANE	5.05		ug/L	5.00	ND	101	70-130	0.6	20	
DICHLORODIFLUOROMETHANE	4.59		ug/L	5.00	ND	92	70-130	0.9	20	
DICHLOROMETHANE	5.12		ug/L	5.00	ND	102	70-130	4	20	
ETHYLBENZENE	4.41		ug/L	5.00	ND	88	70-130	2	20	
ETHYLENE DIBROMIDE	5.02		ug/L	5.00	ND	100	70-130	0.8	20	
HEXACHLOROBUTADIENE	4.60		ug/L	5.00	ND	92	70-130	1	20	
ISOPROPYLBENZENE	4.58		ug/L	5.00	ND	92	70-130	3	20	
M/P-XLENES	9.37		ug/L	10.0	ND	94	70-130	2	20	
METHYL-TERT-BUTYL ETHER	4.99		ug/L	5.00	ND	100	70-130	3	20	
NAPHTHALENE	4.27		ug/L	5.00	ND	85	70-130	0.2	20	
N-BUTYLBENZENE	4.46		ug/L	5.00	ND	89	70-130	0.2	20	
N-PROPYLBENZENE	4.64		ug/L	5.00	ND	93	70-130	4	20	
ORTHO-XYLENE	4.50		ug/L	5.00	ND	90	70-130	3	20	
SEC-BUTYLBENZENE	4.68		ug/L	5.00	ND	94	70-130	4	20	

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike Dup (BH52706-MSD1)</b>									
<b>Source: L151029-01</b>									
<b>Prepared &amp; Analyzed: 08/26/2015</b>									
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>									
STYRENE	0.420		ug/L	5.00	ND	8	70-130	114	20 M2, R9
TERT-BUTYLBENZENE	4.67		ug/L	5.00	ND	93	70-130	2	20
TETRACHLOROETHENE	7.65		ug/L	5.00	2.73	98	70-130	2	20
TOLUENE	4.99		ug/L	5.00	ND	100	70-130	0.4	20
TRANS-1,2-DICHLOROETHENE	5.25		ug/L	5.00	ND	105	70-130	2	20
TRANS-1,3-DICHLOROPROPENE	5.87		ug/L	5.00	ND	117	70-130	0.5	20
TRICHLOROETHENE	13.3		ug/L	5.00	8.37	99	70-130	2	20
TRICHLOROFLUOROMETHANE	5.74		ug/L	5.00	ND	115	70-130	3	20
VINYL CHLORIDE	4.58		ug/L	5.00	ND	92	70-130	2	20
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.15		ug/L	5.00		103	70-130		
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.39		ug/L	5.00		108	70-130		
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.15		ug/L	5.00		103	70-130		

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Reference (BH52706-SRM1)</b>					Prepared & Analyzed: 08/26/2015				
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>									
1,1,1,2-TETRACHLOROETHANE	4.73		ug/L	5.00	95	70-130			
1,1,1-TRICHLOROETHANE	5.14		ug/L	5.00	103	70-130			
1,1,2,2-TETRACHLOROETHANE	4.77		ug/L	5.00	95	70-130			
1,1,2-TRICHLOROETHANE	5.30		ug/L	5.00	106	70-130			
1,1-DICHLOROETHANE	5.24		ug/L	5.00	105	70-130			
1,1-DICHLOROETHENE	5.54		ug/L	5.00	111	70-130			
1,1-DICHLOROPROPENE	5.31		ug/L	5.00	106	70-130			
1,2,3-TRICHLOROBENZENE	4.34		ug/L	5.00	87	70-130			
1,2,3-TRICHLOROPROPANE	4.73		ug/L	5.00	95	70-130			
1,2,4-TRICHLOROBENZENE	4.20		ug/L	5.00	84	70-130			
1,2,4-TRIMETHYLBENZENE	4.58		ug/L	5.00	92	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	4.36		ug/L	5.00	87	70-130			
1,2-DICHLOROBENZENE	4.54		ug/L	5.00	91	70-130			
1,2-DICHLOROETHANE	5.45		ug/L	5.00	109	70-130			
1,2-DICHLOROPROPANE	5.05		ug/L	5.00	101	70-130			
1,3,5-TRIMETHYLBENZENE	4.51		ug/L	5.00	90	70-130			
1,3-DICHLOROBENZENE	4.72		ug/L	5.00	94	70-130			
1,3-DICHLOROPROPANE	4.97		ug/L	5.00	99	70-130			
1,4-DICHLOROBENZENE	4.61		ug/L	5.00	92	70-130			
2,2-DICHLOROPROPANE	5.45		ug/L	5.00	109	70-130			
2-CHLOROTOLUENE	4.65		ug/L	5.00	93	70-130			
4-CHLOROTOLUENE	4.67		ug/L	5.00	93	70-130			
4-ISOPROPYLtoluene	4.49		ug/L	5.00	90	70-130			
BENZENE	5.05		ug/L	5.00	101	70-130			
BROMOBENZENE	4.62		ug/L	5.00	92	70-130			

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Reference (BH52706-SRM1)</b>										Prepared & Analyzed: 08/26/2015
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE	5.16		ug/L	5.00	103		70-130			
BROMODICHLOROMETHANE	4.79		ug/L	5.00	96		70-130			
BROMOFORM	4.58		ug/L	5.00	92		70-130			
BROMOMETHANE	4.85		ug/L	5.00	97		70-130			
CARBON TETRACHLORIDE	4.98		ug/L	5.00	100		70-130			
CHLOROBENZENE	4.74		ug/L	5.00	95		70-130			
CHLOROETHANE	5.88		ug/L	5.00	118		70-130			
CHLOROFORM	5.23		ug/L	5.00	105		70-130			
CHLOROMETHANE	4.24		ug/L	5.00	85		70-130			
CIS-1,2-DICHLOROETHENE	5.18		ug/L	5.00	104		70-130			
CIS-1,3-DICHLOROPROPENE	5.18		ug/L	5.00	104		70-130			
DIBROMOCHLOROMETHANE	4.99		ug/L	5.00	100		70-130			
DIBROMOMETHANE	5.07		ug/L	5.00	101		70-130			
DICHLORODIFLUOROMETHANE	4.22		ug/L	5.00	84		70-130			
DICHLOROMETHANE	5.27		ug/L	5.00	105		70-130			
ETHYLBENZENE	4.45		ug/L	5.00	89		70-130			
ETHYLENE DIBROMIDE	5.15		ug/L	5.00	103		70-130			
HEXACHLOROBUTADIENE	4.54		ug/L	5.00	91		70-130			
ISOPROPYLBENZENE	4.64		ug/L	5.00	93		70-130			
M/P-XYLENES	9.47		ug/L	10.0	95		70-130			
METHYL-TERT-BUTYL ETHER	5.25		ug/L	5.00	105		70-130			
NAPHTHALENE	4.32		ug/L	5.00	86		70-130			
N-BUTYLBENZENE	4.33		ug/L	5.00	87		70-130			
N-PROPYLBENZENE	4.79		ug/L	5.00	96		70-130			
ORTHO-XYLENE	4.58		ug/L	5.00	92		70-130			
SEC-BUTYLBENZENE	4.76		ug/L	5.00	95		70-130			

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Reference (BH52706-SRM1)</b>		Prepared & Analyzed: 08/26/2015								
<b>Batch BH52706 - DEFAULT ORGANIC PREP</b>										
STYRENE	4.67		ug/L	5.00	93	70-130				
TERT-BUTYLBENZENE	4.54		ug/L	5.00	91	70-130				
TETRACHLOROETHENE	5.02		ug/L	5.00	100	70-130				
TOLUENE	4.92		ug/L	5.00	98	70-130				
TRANS-1,2-DICHLOROETHENE	5.11		ug/L	5.00	102	70-130				
TRANS-1,3-DICHLOROPROPENE	5.68		ug/L	5.00	114	70-130				
TRICHLOROETHENE	5.15		ug/L	5.00	103	70-130				
TRICHLOROFLUOROMETHANE	5.64		ug/L	5.00	113	70-130				
VINYL CHLORIDE	4.44		ug/L	5.00	89	70-130				
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.09		ug/L	5.00	102	70-130				
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.23		ug/L	5.00	105	70-130				
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.13		ug/L	5.00	103	70-130				

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4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analytic	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BH52803-BLK1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHENE	ND	0.0005	mg/L							
1,1-DICHLOROPROPENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L							
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L							
1,2-DICHLOROBENZENE	ND	0.0005	mg/L							
1,2-DICHLOROETHANE	ND	0.0005	mg/L							
1,2-DICHLOROPROPANE	ND	0.0005	mg/L							
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROPROPANE	ND	0.0005	mg/L							
1,4-DICHLOROBENZENE	ND	0.0005	mg/L							
2,2-DICHLOROPROPANE	ND	0.0005	mg/L							
2-CHLOROTOLUENE	ND	0.0005	mg/L							
4-CHLOROTOLUENE	ND	0.0005	mg/L							
4-ISOPROPYLtoluene	ND	0.0005	mg/L							
BENZENE	ND	0.0005	mg/L							
BROMOBENZENE	ND	0.0005	mg/L							

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52803-BLK1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE										
BROMODICHLOROMETHANE	ND	0.0005	mg/L							
BROMOFORM	ND	0.0005	mg/L							
BROMOMETHANE	ND	0.0005	mg/L							
CARBON TETRACHLORIDE	ND	0.0005	mg/L							
CHLOROBENZENE	ND	0.0005	mg/L							
CHLOROETHANE	ND	0.0005	mg/L							
CHLOROFORM	ND	0.0005	mg/L							
CHLOROMETHANE	ND	0.0005	mg/L							
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L							
DI(BROMOMETHANE)	ND	0.0005	mg/L							
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L							
DICHLOROMETHANE	ND	0.0005	mg/L							
ETHYLBENZENE	ND	0.0005	mg/L							
ETHYLENE DIBROMIDE	ND	0.0005	mg/L							
HEXACHLOROBUTADIENE	ND	0.0005	mg/L							
ISOPROPYLBENZENE	ND	0.0005	mg/L							
M/P-XYLENES	ND	0.0005	mg/L							
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L							
NAPHTHALENE	ND	0.0005	mg/L							
N-BUTYLBENZENE	ND	0.0005	mg/L							
N-PROPYLBENZENE	ND	0.0005	mg/L							
ORTHO-XYLENE	ND	0.0005	mg/L							
SEC-BUTYLBENZENE	ND	0.0005	mg/L							

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52803-BLK1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
STYRENE	ND	0.0005	mg/L							
TERT-BUTYLBENZENE	ND	0.0005	mg/L							
TETRACHLOROETHENE	ND	0.0005	mg/L							
TOLUENE	ND	0.0005	mg/L							
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L							
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
TRICHLOROETHENE	ND	0.0005	mg/L							
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L							
VINYL CHLORIDE	ND	0.0005	mg/L							
XYLEMES (TOTAL)	ND	0.0005	mg/L							
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	4.46		ug/L	5.00		89	70-130			
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	4.97		ug/L	5.00		99	70-130			
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.11		ug/L	5.00		102	70-130			

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (BH52803-MS1)</b>									
<b>Source: L151032-01</b>									
<b>Prepared &amp; Analyzed: 08/27/2015</b>									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>									
1,1,1,2-TETRACHLOROETHANE	4.89		ug/L	5.00	ND	98	70-130		
1,1,1-TRICHLOROETHANE	5.41		ug/L	5.00	ND	108	70-130		
1,1,2,2-TETRACHLOROETHANE	4.79		ug/L	5.00	ND	96	70-130		
1,1,2-TRICHLOROETHANE	5.19		ug/L	5.00	ND	104	70-130		
1,1-DICHLOROETHANE	5.68		ug/L	5.00	ND	114	70-130		
1,1-DICHLOROETHENE	5.92		ug/L	5.00	ND	118	70-130		
1,1-DICHLOROPROPENE	5.64		ug/L	5.00	ND	113	70-130		
1,2,3-TRICHLOROBENZENE	4.36		ug/L	5.00	ND	87	70-130		
1,2,3-TRICHLOROPROPANE	4.56		ug/L	5.00	ND	91	70-130		
1,2,4-TRICHLOROBENZENE	4.25		ug/L	5.00	ND	85	70-130		
1,2,4-TRIMETHYLBENZENE	4.80		ug/L	5.00	ND	96	70-130		
1,2-DIBROMO-3-CHLOROPROPANE	4.21		ug/L	5.00	ND	84	70-130		
1,2-DICHLOROBENZENE	4.57		ug/L	5.00	ND	91	70-130		
1,2-DICHLOROETHANE	5.49		ug/L	5.00	ND	110	70-130		
1,2-DICHLOROPROPANE	5.23		ug/L	5.00	ND	105	70-130		
1,3,5-TRIMETHYLBENZENE	4.74		ug/L	5.00	ND	95	70-130		
1,3-DICHLOROBENZENE	4.95		ug/L	5.00	ND	99	70-130		
1,3-DICHLOROPROPANE	5.00		ug/L	5.00	ND	100	70-130		
1,4-DICHLOROBENZENE	4.69		ug/L	5.00	ND	94	70-130		
2,2-DICHLOROPROPANE	5.46		ug/L	5.00	ND	109	70-130		
2-CHLOROTOLUENE	4.99		ug/L	5.00	ND	100	70-130		
4-CHLOROTOLUENE	4.98		ug/L	5.00	ND	100	70-130		
4-ISOPROPYLtoluene	4.65		ug/L	5.00	ND	93	70-130		
BENZENE	5.37		ug/L	5.00	ND	107	70-130		
BROMOBENZENE	4.66		ug/L	5.00	ND	93	70-130		

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (BH52803-MS1)</b>		<b>Source: L151032-01</b>				Prepared & Analyzed: 08/27/2015			
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>									
BROMOCHLOROMETHANE	5.32		ug/L	5.00	ND	106	70-130		
BROMODICHLOROMETHANE	4.62		ug/L	5.00	ND	92	70-130		
BROMOFORM	4.20		ug/L	5.00	ND	84	70-130		
BROMOMETHANE	5.11		ug/L	5.00	ND	102	70-130		
CARBON TETRACHLORIDE	5.36		ug/L	5.00	ND	107	70-130		
CHLOROBENZENE	4.87		ug/L	5.00	ND	97	70-130		
CHLOROETHANE	6.14		ug/L	5.00	ND	123	70-130		
CHLOROFORM	5.49		ug/L	5.00	ND	110	70-130		
CHLOROMETHANE	4.55		ug/L	5.00	ND	91	70-130		
CIS-1,2-DICHLOROETHENE	5.35		ug/L	5.00	ND	107	70-130		
CIS-1,3-DICHLOROPROPENE	5.07		ug/L	5.00	ND	101	70-130		
DIBROMOCHLOROMETHANE	4.85		ug/L	5.00	ND	97	70-130		
DIBROMOMETHANE	5.13		ug/L	5.00	ND	103	70-130		
DICHLORODIFLUOROMETHANE	4.63		ug/L	5.00	ND	93	70-130		
DICHLOROMETHANE	5.46		ug/L	5.00	ND	109	70-130		
ETHYLBENZENE	4.66		ug/L	5.00	ND	93	70-130		
ETHYLENE DIBROMIDE	5.22		ug/L	5.00	ND	104	70-130		
HEXACHLOROBUTADIENE	4.82		ug/L	5.00	ND	96	70-130		
ISOPROPYLBENZENE	4.95		ug/L	5.00	ND	99	70-130		
M/P-XYLENES	9.82		ug/L	10.0	ND	98	70-130		
METHYL-TERT-BUTYL ETHER	5.17		ug/L	5.00	ND	103	70-130		
NAPHTHALENE	4.27		ug/L	5.00	ND	85	70-130		
N-BUTYLBENZENE	4.57		ug/L	5.00	ND	91	70-130		
N-PROPYLBENZENE	5.06		ug/L	5.00	ND	101	70-130		
ORTHO-XYLENE	4.73		ug/L	5.00	ND	95	70-130		
SEC-BUTYLBENZENE	5.08		ug/L	5.00	ND	102	70-130		

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4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (BH52803-MS1)</b>									
Source: L151032-01 Prepared & Analyzed: 08/27/2015									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>									
STYRENE	4.30		ug/L	5.00	ND	86	70-130		
TERT-BUTYLBENZENE	4.81		ug/L	5.00	ND	96	70-130		
TETRACHLOROETHENE	5.41		ug/L	5.00	ND	108	70-130		
TOLUENE	5.10		ug/L	5.00	ND	102	70-130		
TRANS-1,2-DICHLOROETHENE	5.49		ug/L	5.00	ND	110	70-130		
TRANS-1,3-DICHLOROPROPENE	5.45		ug/L	5.00	ND	109	70-130		
TRICHLOROETHENE	5.21		ug/L	5.00	ND	104	70-130		
TRICHLOROFLUOROMETHANE	6.14		ug/L	5.00	ND	123	70-130		
VINYL CHLORIDE	4.77		ug/L	5.00	ND	95	70-130		
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.15		ug/L	5.00		103	70-130		
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.44		ug/L	5.00		109	70-130		
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	4.96		ug/L	5.00		99	70-130		

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.78		ug/L	5.00	ND	96	70-130	2	20	
1,1,1-TRICHLOROETHANE	5.18		ug/L	5.00	ND	104	70-130	4	20	
1,1,2,2-TETRACHLOROETHANE	4.71		ug/L	5.00	ND	94	70-130	2	20	
1,1,2-TRICHLOROETHANE	5.14		ug/L	5.00	ND	103	70-130	1	20	
1,1-DICHLOROETHANE	5.45		ug/L	5.00	ND	109	70-130	4	20	
1,1-DICHLOROETHENE	5.73		ug/L	5.00	ND	115	70-130	3	20	
1,1-DICHLOROPROPENE	5.37		ug/L	5.00	ND	107	70-130	5	20	
1,2,3-TRICHLOROBENZENE	4.40		ug/L	5.00	ND	88	70-130	0.9	20	
1,2,3-TRICHLOROPROPANE	4.55		ug/L	5.00	ND	91	70-130	0.2	20	
1,2,4-TRICHLOROBENZENE	4.31		ug/L	5.00	ND	86	70-130	1	20	
1,2,4-TRIMETHYLBENZENE	4.58		ug/L	5.00	ND	92	70-130	5	20	
1,2-DIBROMO-3-CHLOROPROPANE	4.07		ug/L	5.00	ND	81	70-130	3	20	
1,2-DICHLOROBENZENE	4.70		ug/L	5.00	ND	94	70-130	3	20	
1,2-DICHLOROETHANE	5.33		ug/L	5.00	ND	107	70-130	3	20	
1,2-DICHLOROPROPANE	5.10		ug/L	5.00	ND	102	70-130	3	20	
1,3,5-TRIMETHYLBENZENE	4.51		ug/L	5.00	ND	90	70-130	5	20	
1,3-DICHLOROBENZENE	4.77		ug/L	5.00	ND	95	70-130	4	20	
1,3-DICHLOROPROPANE	4.82		ug/L	5.00	ND	96	70-130	4	20	
1,4-DICHLOROBENZENE	4.70		ug/L	5.00	ND	94	70-130	0.2	20	
2,2-DICHLOROPROPANE	5.32		ug/L	5.00	ND	106	70-130	3	20	
2-CHLOROTOLUENE	4.74		ug/L	5.00	ND	95	70-130	5	20	
4-CHLOROTOLUENE	4.65		ug/L	5.00	ND	93	70-130	7	20	
4-ISOPROPYLtoluene	4.67		ug/L	5.00	ND	93	70-130	0.4	20	
BENZENE	5.15		ug/L	5.00	ND	103	70-130	4	20	
BROMOBENZENE	4.52		ug/L	5.00	ND	90	70-130	3	20	

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>									
<b>Source: L151032-01</b>									
<b>Prepared &amp; Analyzed: 08/27/2015</b>									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>									
BROMOCHLOROMETHANE	5.23		ug/L	5.00	ND	105	70-130	2	20
BROMODICHLOROMETHANE	4.74		ug/L	5.00	ND	95	70-130	3	20
BROMOFORM	4.18		ug/L	5.00	ND	84	70-130	0.5	20
BROMOMETHANE	4.84		ug/L	5.00	ND	97	70-130	5	20
CARBON TETRACHLORIDE	5.25		ug/L	5.00	ND	105	70-130	2	20
CHLOROBENZENE	4.66		ug/L	5.00	ND	93	70-130	4	20
CHLOROETHANE	5.90		ug/L	5.00	ND	118	70-130	4	20
CHLOROFORM	5.25		ug/L	5.00	ND	105	70-130	4	20
CHLOROMETHANE	4.37		ug/L	5.00	ND	87	70-130	4	20
CIS-1,2-DICHLOROETHENE	5.23		ug/L	5.00	ND	105	70-130	2	20
CIS-1,3-DICHLOROPROPENE	4.96		ug/L	5.00	ND	99	70-130	2	20
DIBROMOCHLOROMETHANE	4.82		ug/L	5.00	ND	96	70-130	0.6	20
DIBROMOMETHANE	5.09		ug/L	5.00	ND	102	70-130	0.8	20
DICHLORODIFLUOROMETHANE	4.35		ug/L	5.00	ND	87	70-130	6	20
DICHLOROMETHANE	5.28		ug/L	5.00	ND	106	70-130	3	20
ETHYLBENZENE	4.41		ug/L	5.00	ND	88	70-130	6	20
ETHYLENE DIBROMIDE	5.03		ug/L	5.00	ND	101	70-130	4	20
HEXACHLOROBUTADIENE	4.83		ug/L	5.00	ND	97	70-130	0.2	20
ISOPROPYLBENZENE	4.69		ug/L	5.00	ND	94	70-130	5	20
M/P-XYLENES	9.43		ug/L	10.0	ND	94	70-130	4	20
METHYL-TERT-BUTYL ETHER	5.16		ug/L	5.00	ND	103	70-130	0.2	20
NAPHTHALENE	4.31		ug/L	5.00	ND	86	70-130	0.9	20
N-BUTYLBENZENE	4.58		ug/L	5.00	ND	92	70-130	0.2	20
N-PROPYLBENZENE	4.79		ug/L	5.00	ND	96	70-130	5	20
ORTHO-XYLENE	4.59		ug/L	5.00	ND	92	70-130	3	20
SEC-BUTYLBENZENE	4.76		ug/L	5.00	ND	95	70-130	7	20

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
STYRENE	3.85		ug/L	5.00	ND	77	70-130	11	20	
TERT-BUTYLBENZENE	4.60		ug/L	5.00	ND	92	70-130	4	20	
TETRACHLOROETHENE	5.18		ug/L	5.00	ND	104	70-130	4	20	
TOLUENE	5.00		ug/L	5.00	ND	100	70-130	2	20	
TRANS-1,2-DICHLOROETHENE	5.29		ug/L	5.00	ND	106	70-130	4	20	
TRANS-1,3-DICHLOROPROPENE	5.52		ug/L	5.00	ND	110	70-130	1	20	
TRICHLOROETHENE	5.15		ug/L	5.00	ND	103	70-130	1	20	
TRICHLOROFLUOROMETHANE	5.92		ug/L	5.00	ND	118	70-130	4	20	
VINYL CHLORIDE	4.62		ug/L	5.00	ND	92	70-130	3	20	
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	4.92		ug/L	5.00		98	70-130			
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.37		ug/L	5.00		107	70-130			
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.03		ug/L	5.00		101	70-130			

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Reference (BH52803-SRM1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.50		ug/L	5.00		90	70-130			
1,1,1-TRICHLOROETHANE	4.97		ug/L	5.00		99	70-130			
1,1,2,2-TETRACHLOROETHANE	4.66		ug/L	5.00		93	70-130			
1,1,2-TRICHLOROETHANE	5.19		ug/L	5.00		104	70-130			
1,1-DICHLOROETHANE	5.43		ug/L	5.00		109	70-130			
1,1-DICHLOROETHENE	5.53		ug/L	5.00		111	70-130			
1,1-DICHLOROPROPENE	5.22		ug/L	5.00		104	70-130			
1,2,3-TRICHLOROBENZENE	4.38		ug/L	5.00		88	70-130			
1,2,3-TRICHLOROPROPANE	4.70		ug/L	5.00		94	70-130			
1,2,4-TRICHLOROBENZENE	4.30		ug/L	5.00		86	70-130			
1,2,4-TRIMETHYLBENZENE	4.65		ug/L	5.00		93	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	3.74		ug/L	5.00		75	70-130			
1,2-DICHLOROBENZENE	4.65		ug/L	5.00		93	70-130			
1,2-DICHLOROETHANE	5.47		ug/L	5.00		109	70-130			
1,2-DICHLOROPROPANE	5.16		ug/L	5.00		103	70-130			
1,3,5-TRIMETHYLBENZENE	4.48		ug/L	5.00		90	70-130			
1,3-DICHLOROBENZENE	4.81		ug/L	5.00		96	70-130			
1,3-DICHLOROPROPANE	5.00		ug/L	5.00		100	70-130			
1,4-DICHLOROBENZENE	4.75		ug/L	5.00		95	70-130			
2,2-DICHLOROPROPANE	5.18		ug/L	5.00		104	70-130			
2-CHLOROTOLUENE	4.72		ug/L	5.00		94	70-130			
4-CHLOROTOLUENE	4.64		ug/L	5.00		93	70-130			
4-ISOPROPYLtoluene	4.63		ug/L	5.00		93	70-130			
BENZENE	5.25		ug/L	5.00		105	70-130			
BROMOBENZENE	4.53		ug/L	5.00		91	70-130			

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 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
<b>Reference (BH52803-SRM1)</b>		Prepared & Analyzed: 08/27/2015									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>											
BROMOCHLOROMETHANE	5.19		ug/L	5.00	104		70-130				
BROMODICHLOROMETHANE	4.24		ug/L	5.00	85		70-130				
BROMOFORM	3.89		ug/L	5.00	78		70-130				
BROMOMETHANE	5.25		ug/L	5.00	105		70-130				
CARBON TETRACHLORIDE	4.76		ug/L	5.00	95		70-130				
CHLOROBENZENE	4.65		ug/L	5.00	93		70-130				
CHLOROETHANE	6.05		ug/L	5.00	121		70-130				
CHLOROFORM	5.23		ug/L	5.00	105		70-130				
CHLOROMETHANE	4.43		ug/L	5.00	89		70-130				
CIS-1,2-DICHLOROETHENE	5.07		ug/L	5.00	101		70-130				
CIS-1,3-DICHLOROPROPENE	4.86		ug/L	5.00	97		70-130				
DIBROMOCHLOROMETHANE	4.57		ug/L	5.00	91		70-130				
DIBROMOMETHANE	5.04		ug/L	5.00	101		70-130				
DICHLORODIFLUOROMETHANE	4.61		ug/L	5.00	92		70-130				
DICHLOROMETHANE	5.44		ug/L	5.00	109		70-130				
ETHYLBENZENE	4.41		ug/L	5.00	88		70-130				
ETHYLENE DIBROMIDE	5.01		ug/L	5.00	100		70-130				
HEXACHLOROBUTADIENE	4.63		ug/L	5.00	93		70-130				
ISOPROPYLBENZENE	4.63		ug/L	5.00	93		70-130				
M/P-XYLENES	9.49		ug/L	10.0	95		70-130				
METHYL-TERT-BUTYL ETHER	5.34		ug/L	5.00	107		70-130				
NAPHTHALENE	4.46		ug/L	5.00	89		70-130				
N-BUTYLBENZENE	4.50		ug/L	5.00	90		70-130				
N-PROPYLBENZENE	4.77		ug/L	5.00	95		70-130				
ORTHO-XYLENE	4.57		ug/L	5.00	91		70-130				
SEC-BUTYLBENZENE	4.81		ug/L	5.00	96		70-130				

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 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Reference (BH52803-SRM1)

Prepared & Analyzed: 08/27/2015

#### Batch BH52803 - DEFAULT ORGANIC PREP

STYRENE	4.61	ug/L	5.00		92	70-130
TERT-BUTYLBENZENE	4.69	ug/L	5.00		94	70-130
TETRACHLOROETHENE	5.09	ug/L	5.00		102	70-130
TOLUENE	5.02	ug/L	5.00		100	70-130
TRANS-1,2-DICHLOROETHENE	5.07	ug/L	5.00		101	70-130
TRANS-1,3-DICHLOROPROPENE	5.45	ug/L	5.00		109	70-130
TRICHLOROETHENE	4.95	ug/L	5.00		99	70-130
TRICHLOROFLUOROMETHANE	5.92	ug/L	5.00		118	70-130
VINYL CHLORIDE	4.68	ug/L	5.00		94	70-130
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.08	ug/L	5.00		102	70-130
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.35	ug/L	5.00		107	70-130
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.09	ug/L	5.00		102	70-130

### Total Metals by ICP - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Total Metals by ICP - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Blank (B150202-BLK1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch B150202 - EPA 200.7/200.8**

BARIUM	ND	0.0200	mg/L							
CALCIUM	ND	2.00	mg/L							
IRON	ND	0.0200	mg/L							
MAGNESIUM	ND	0.500	mg/L							
MANGANESE	ND	0.0200	mg/L							
POTASSIUM	ND	0.500	mg/L							
SODIUM	ND	2.00	mg/L							

**LCS (B150202-BS1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch B150202 - EPA 200.7/200.8**

BARIUM	0.205	0.0200	mg/L	0.200	103	85-115
CALCIUM	20.6	2.00	mg/L	20.0	103	85-115
IRON	1.01	0.0200	mg/L	1.00	101	85-115
MAGNESIUM	5.15	0.500	mg/L	5.00	103	85-115
MANGANESE	0.206	0.0200	mg/L	0.200	103	85-115
POTASSIUM	2.13	0.500	mg/L	2.00	107	85-115
SODIUM	20.7	2.00	mg/L	20.0	104	85-115

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### Total Metals by ICP - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike (BI50202-MS1)</b>										
<b>Source: L151032-03</b> Prepared: 08/31/2015 Analyzed: 09/01/2015										
<b>Batch BI50202 - EPA 200.7/200.8</b>										
BAARIUM 0.248 0.0200 mg/L 0.200 0.0422 103 70-130										
CALCIUM 32.1 2.00 mg/L 20.0 12.3 98.9 70-130										
IRON 1.04 0.0200 mg/L 1.00 0.0274 101 70-130										
MAGNESIUM 9.34 0.500 mg/L 5.00 4.21 103 70-130										
MANGANESE 0.207 0.0200 mg/L 0.200 0.000368 103 70-130										
POTASSIUM 3.34 0.500 mg/L 2.00 1.26 104 70-130										
SODIUM 183 2.00 mg/L 20.0 164 97.3 70-130										
<b>Matrix Spike Dup (BI50202-MSD1)</b>										
<b>Source: L151032-03</b> Prepared: 08/31/2015 Analyzed: 09/01/2015										
<b>Batch BI50202 - EPA 200.7/200.8</b>										
BAARIUM 0.249 0.0200 mg/L 0.200 0.0422 104 70-130 0.388 10										
CALCIUM 32.1 2.00 mg/L 20.0 12.3 98.6 70-130 0.180 10										
IRON 1.04 0.0200 mg/L 1.00 0.0274 102 70-130 0.279 10										
MAGNESIUM 9.32 0.500 mg/L 5.00 4.21 102 70-130 0.241 10										
MANGANESE 0.207 0.0200 mg/L 0.200 0.000368 103 70-130 0.283 10										
POTASSIUM 3.39 0.500 mg/L 2.00 1.26 107 70-130 1.52 10										
SODIUM 183 2.00 mg/L 20.0 164 97.0 70-130 0.0296 10										

### Total Metals by ICPMS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Total Metals by ICPMS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
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**Blank (B150209-BLK1)** Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch B150209 - EPA 200.7/200.8

ARSENIC	ND	0.00100	mg/L
LEAD	ND	0.00100	mg/L

**LCS (B150209-BS1)** Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch B150209 - EPA 200.7/200.8

ARSENIC	0.0105	0.00100	mg/L	0.0100	105	85-115
LEAD	0.00962	0.00100	mg/L	0.0100	96.2	85-115

**Matrix Spike (B150209-MS1)** Source: L151032-03 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch B150209 - EPA 200.7/200.8

ARSENIC	0.0123	0.00100	mg/L	0.0100	0.00235	100	70-130
LEAD	0.00931	0.00100	mg/L	0.0100	0.000125	91.9	70-130

**Matrix Spike Dup (B150209-MSD1)** Source: L151032-03 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch B150209 - EPA 200.7/200.8

ARSENIC	0.0126	0.00100	mg/L	0.0100	0.00235	102	70-130	1.85	10
LEAD	0.00947	0.00100	mg/L	0.0100	0.000125	93.5	70-130	1.72	10

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
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Tucson Water Quality Lab  
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 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Matrix Spike (BH52704-MS1)      Source: L151029-03      Prepared & Analyzed: 08/26/2015

#### **Batch BH52704 - Default Prep - Wet Chemistry**

BROMIDE	5.4	0.104	mg/L	0.833	4.5	103	80-120
FLUORIDE	1.7	0.104	mg/L	0.833	0.8	101	80-120
NITRATE AS N	5.7	0.260	mg/L	4.17	1.6	99.2	80-120
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	95.4	80-120
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	97.2	80-120

Matrix Spike (BH52704-MS3)      Source: L151029-03RE2      Prepared & Analyzed: 08/27/2015

#### **Batch BH52704 - Default Prep - Wet Chemistry**

CHLORIDE	1000	30.0	mg/L	400	577	107	80-120
SULFATE	972	50.0	mg/L	400	546	106	80-120

Matrix Spike Dup (BH52704-MSD1)      Source: L151029-03      Prepared & Analyzed: 08/26/2015

#### **Batch BH52704 - Default Prep - Wet Chemistry**

BROMIDE	5.3	0.104	mg/L	0.833	4.5	100	80-120	0.417	10
FLUORIDE	1.7	0.104	mg/L	0.833	0.8	101	80-120	0.245	10
NITRATE AS N	5.7	0.260	mg/L	4.17	1.6	99.6	80-120	0.290	10
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	95.9	80-120	0.565	10
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	94.9	80-120	2.39	10

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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
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Matrix Spike Dup (BH52704-MSD3)      Source: L151029-03RE2      Prepared & Analyzed: 08/27/2015

#### Batch BH52704 - Default Prep - Wet Chemistry

CHLORIDE	1000	30.0	mg/L	400	577	106	80-120	0.167	10
SULFATE	971	50.0	mg/L	400	546	106	80-120	0.0843	10

Matrix Spike (BH52705-MS1)      Source: L151029-06      Prepared & Analyzed: 08/26/2015

#### Batch BH52705 - Default Prep - Wet Chemistry

BROMIDE	1.3	0.104	mg/L	0.833	0.5	95.1	80-120	
CHLORIDE	122	3.12	mg/L	41.7	80.5	99.1	80-120	
FLUORIDE	2.0	0.104	mg/L	0.833	1.2	102	80-120	
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	94.9	80-120	
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	95.6	80-120	
SULFATE	187	5.21	mg/L	41.7	146	99.6	80-120	

Matrix Spike (BH52705-MS2)      Source: L151029-06RE1      Prepared & Analyzed: 08/27/2015

#### Batch BH52705 - Default Prep - Wet Chemistry

NITRATE AS N	28.6	1.25	mg/L	20.0	8.9	98.7	80-120	
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Matrix Spike Dup (BH52705-MSD1)      Source: L151029-06      Prepared & Analyzed: 08/26/2015

#### Batch BH52705 - Default Prep - Wet Chemistry

BROMIDE	1.3	0.104	mg/L	0.833	0.5	97.4	80-120	1.41	10
CHLORIDE	122	3.12	mg/L	41.7	80.5	99.8	80-120	0.249	10
FLUORIDE	2.1	0.104	mg/L	0.833	1.2	103	80-120	0.335	10
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	95.1	80-120	0.225	10
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	96.2	80-120	0.600	10
SULFATE	188	5.21	mg/L	41.7	146	101	80-120	0.289	10

Matrix Spike Dup (BH52705-MSD2)      Source: L151029-06RE1      Prepared & Analyzed: 08/27/2015

#### Batch BH52705 - Default Prep - Wet Chemistry

NITRATE AS N	28.6	1.25	mg/L	20.0	8.9	98.9	80-120	0.126	10
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Duplicate (BH52707-DUP1)      Source: L151029-03      Prepared & Analyzed: 08/27/2015

#### Batch BH52707 - Default Prep - Wet Chemistry

TOTAL DISSOLVED SOLIDS	1820	10.0	mg/L	1800			0.663	5
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Blank (BI50101-BLK1)      Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	ND	0.25	mg/L
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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
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Blank (BI50101-BLK2) Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

Blank (BI50101-BLK3) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

Blank (BI50101-BLK4) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

Blank (BI50101-BLK5) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

LCS (BI50101-BS1) Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 5.00 mg/L 5.00 100 90-110

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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LCS (BI50101-BS2) Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	10.1	mg/L	10.0	101	90-110
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LCS (BI50101-BS3) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	5.04	mg/L	5.00	101	90-110
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LCS (BI50101-BS4) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	10.3	mg/L	10.0	103	90-110
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LCS (BI50101-BS5) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	5.10	mg/L	5.00	102	90-110
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MRL Check (BI50101-MRL1) Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	0.332	mg/L	0.250	133	50-150
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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	09/24/2015 14:18
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike (B150101-MS1)</b> <b>Source: L150994-02</b> Prepared & Analyzed: 09/01/2015										
<b>Batch B150101 - DEFAULT ORGANIC PREP</b>										
TOTAL ORGANIC CARBON      1.17      mg/L      0.900      0.399      86      83-114										
<b>Matrix Spike (B150101-MS2)</b> <b>Source: L151015-02</b> Prepared & Analyzed: 09/02/2015										
<b>Batch B150101 - DEFAULT ORGANIC PREP</b>										
TOTAL ORGANIC CARBON      1.24      mg/L      0.900      0.493      83      83-114										
<b>Duplicate (B150104-DUP1)</b> <b>Source: L151010-05</b> Prepared & Analyzed: 08/31/2015										
<b>Batch B150104 - Default Prep - Wet Chemistry</b>										
ALKALINITY, TOTAL      140      20.0      mg/L as CaCO <sub>3</sub> 142      1.33      10										
<b>Matrix Spike (B150104-MS1)</b> <b>Source: L151010-05</b> Prepared & Analyzed: 08/31/2015										
<b>Batch B150104 - Default Prep - Wet Chemistry</b>										
ALKALINITY, TOTAL      205      20.0      mg/L as CaCO <sub>3</sub> 59.0      142      108      80-120										
<b>Duplicate (B150105-DUP1)</b> <b>Source: L151029-06</b> Prepared & Analyzed: 08/31/2015										
<b>Batch B150105 - Default Prep - Wet Chemistry</b>										
ALKALINITY, TOTAL      296      20.0      mg/L as CaCO <sub>3</sub> 298      0.994      10										

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**Tucson Water Quality Lab**  
**4401 S. Tucson Estates Pkwy.**  
**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 09/24/2015 14:18
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### **Wet Chemistry - Quality Control**

#### **Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Matrix Spike (BI50105-MS1)**      Source: L151029-06      Prepared & Analyzed: 08/31/2015

#### **Batch BI50105 - Default Prep - Wet Chemistry**

ALKALINITY, TOTAL	360	20.0	mg/L as CaCO <sub>3</sub>	59.0	298	105	80-120
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**Matrix Spike (BI51102-MS1)**      Source: L151046-01      Prepared & Analyzed: 09/10/2015

#### **Batch BI51102 - Default Prep - Wet Chemistry**

BROMIDE	0.9	0.104	mg/L	0.833	0.09	95.8	80-120
CHLORIDE	48.6	3.12	mg/L	41.7	8.4	96.5	80-120
FLUORIDE	1.0	0.104	mg/L	0.833	0.1	98.4	80-120
NITRATE AS N	4.2	0.260	mg/L	4.17	0.2	97.4	80-120
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	95.9	80-120
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	97.1	80-120
SULFATE	57.1	5.21	mg/L	41.7	17.7	94.6	80-120

**Matrix Spike Dup (BI51102-MSD1)**      Source: L151046-01      Prepared & Analyzed: 09/10/2015

#### **Batch BI51102 - Default Prep - Wet Chemistry**

BROMIDE	0.9	0.104	mg/L	0.833	0.09	96.8	80-120	0.919	10
CHLORIDE	49.2	3.12	mg/L	41.7	8.4	98.0	80-120	1.25	10
FLUORIDE	1.0	0.104	mg/L	0.833	0.1	99.8	80-120	1.16	10
NITRATE AS N	4.3	0.260	mg/L	4.17	0.2	98.6	80-120	1.14	10
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	97.0	80-120	1.09	10
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	96.0	80-120	1.11	10
SULFATE	57.7	5.21	mg/L	41.7	17.7	96.1	80-120	1.11	10

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	<b>Reported:</b>
Tucson AZ, 85726	Project Manager: Arturo Burgos	09/24/2015 14:18

### Certified Analyses included in this Report

Analyte	Certifications		
<hr/>			
Code	Description	Number	Expires

---

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services  
-  
Tucson AZ, 85726

Project: Tumamoc Landfill  
Project Number: P01025  
Project Manager: Arturo Burgos

Reported:  
09/24/2015 14:18

#### Notes and Definitions

R9	Sample RPD exceeded laboratory acceptance limit.
M2	Matrix spike recovery was low, associated blank spike recovery was acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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### Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: \166.89.20.134\ElementServerFolders\TransferIn\L151029 TRANSFER 09 17 2015 1712

## TUCSON WATER CHAIN OF CUSTODY

LOGIN ID: L151029

CLIENT: ES

**PROJECT NAME/ EFFICIENCY:**

**NAME/FREQUENT  
LAMMOC LANDFILL**

PROJECT #:P01025

SAMPLING DATE:  
05-26-15

SAMPLED BY:  
print full name

Kayla Virgone  
signature Kayla Virgone

PRESERVATIVE

#### NUMBER OF CONTAINERS

Page 83 of 83



4401 S. Tucson Estates Parkway  
Tucson, Arizona 85735  
520.791.2544 Phone  
520.791.5260 Fax

19 October 2015

Arturo Burgos  
Environmental Services  
  
Tucson, AZ 85735  
RE: Tumamoc Landfill

Enclosed are the results for Work Order L151032, received by the laboratory on 08/27/2015 12:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michael E. Dew  
Lab Manager

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WR-455A	L151032-01	Aqueous	08/27/2015 07:50	08/27/2015 12:40
WR-455B	L151032-02	Aqueous	08/27/2015 08:10	08/27/2015 12:40
WR-454A	L151032-03	Aqueous	08/27/2015 08:38	08/27/2015 12:40
WR-454B	L151032-04	Aqueous	08/27/2015 08:55	08/27/2015 12:40
WR-449A	L151032-05	Aqueous	08/27/2015 09:31	08/27/2015 12:40
WR-448A	L151032-06	Aqueous	08/27/2015 10:30	08/27/2015 12:40
WR-448B	L151032-07	Aqueous	08/27/2015 10:45	08/27/2015 12:40
TRIP BLANK	L151032-08	Aqueous	08/27/2015 07:50	08/27/2015 12:40

All QC results were within QC limits with the following exceptions:

The Sodium result, by EPA Method 200.7, for L151032-05RE2 (WR-449A) was flagged with the M4 qualifier. This sample was used for the EPA 200.7 MS/MSD. The Sample was diluted 5 fold to yield a Sodium result within the linear working range. The spike level was diluted out for Sodium. No Sodium matrix spike and matrix spike duplicate results are available.

The ammonia nitrogen results, by EPA Method 350.1, for L151032-02 (WR-455B), L151032-03 (WR-454A), L151032-05 (WR-449A) and L151032-06 (WR-448) were flagged with the N1 qualifier. The matrix spike recovery was outside the QC limits with a recovery of 28% with QC limits of 90% - 110%. The spiked sample was not from this login.

The ammonia nitrogen result, by EPA Method 350.1, for L151032-04 (WR-454B) was flagged with the M2 qualifier. Matrix spike recovery was outside the QC limits of 90% - 110% with a recovery of 82%.

Please see page 66 for Notes and Definitions.

Tucson Water Quality Laboratory

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Michael E. Dew, Lab Manager

Page 2 of 68

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 10/19/2015 13:56
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**WR-455A**  
**L151032-01 (Aqueous)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455A**  
**L151032-01 (Aqueous)**

Sampled:

08/27/2015 7:50

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455A**  
**L151032-01 (Aqueous)**

Sampled:  
 08/27/2015 7:50

Analyte	Result	Reporting						Method	Notes
		Limit	Units	Dilution	Batch	Prepared	Analyzed		

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	90 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	100 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	102 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455A**  
**L151032-01 (Aqueous)**

Sampled:  
 08/27/2015 7:50

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0223</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>9.83</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>ND</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>14.1</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	<b>ND</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>1.87</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	<b>175</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.0140</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	<b>ND</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>264</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, CARBONATE	<b>24.0</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>288</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>0.687</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
CHLORIDE	<b>79.2</b>	3.00	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>0.993</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	<b>0.873</b>	0.250	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	<b>ND</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	<b>ND</b>	0.200	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
SULFATE	<b>56.8</b>	5.00	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>516</b>	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455A**  
**L151032-01 (Aqueous)**

**Sampled:**  
08/27/2015 7:50

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Wet Chemistry**

TOTAL ORGANIC CARBON      0.41      0.25 mg/L      1      B150101      09/02/2015      09/02/2015      SM 5310

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455B**  
**L151032-02 (Aqueous)**

Sampled:  
 08/27/2015 8:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	0.083	0.05	mg/L	1	'[none]'	09/14/2015	EPA 350.1	N1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455B**  
**L151032-02 (Aqueous)**

Sampled:  
 08/27/2015 8:10

Analytic	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455B**  
**L151032-02 (Aqueous)**

Sampled:  
 08/27/2015 8:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	90 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	101 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	101 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-455B**  
**L151032-02 (Aqueous)**

Sampled:  
 08/27/2015 8:10

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0721</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>33.1</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>ND</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>22.6</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	<b>ND</b>	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>1.79</b>	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	<b>144</b>	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.0104</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	<b>ND</b>	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>341</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>341</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>0.536</b>	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
CHLORIDE	<b>59.8</b>	3.00	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>0.699</b>	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	<b>2.79</b>	0.250	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	<b>ND</b>	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	<b>ND</b>	0.200	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
SULFATE	<b>53.7</b>	5.00	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>563</b>	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>0.42</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454A**

**L151032-03 (Aqueous)**

**Sampled:**  
 08/27/2015 8:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	[none]'	09/14/2015	EPA 350.1	N1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454A**  
**L151032-03 (Aqueous)**

Sampled:  
 08/27/2015 8:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454A**  
**L151032-03 (Aqueous)**

Sampled:  
 08/27/2015 8:38

Analyte	Result	Reporting						Method	Notes
		Limit	Units	Dilution	Batch	Prepared	Analyzed		

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	91 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	102 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	98 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454A**  
**L151032-03 (Aqueous)**

Sampled:  
 08/27/2015 8:38

Analytic	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	0.0422	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	12.3	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
IRON	0.0274	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	4.21	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	1.26	0.500	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7
SODIUM	164	2.00	mg/L	1	BI50202	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	0.00235	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00100	mg/L	1	BI50209	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	312	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, CARBONATE	ND	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	323	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	0.303	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
CHLORIDE	31.3	3.00	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	0.913	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	1.96	0.250	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
SULFATE	35.1	5.00	mg/L	1	BH52802	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	452	10.0	mg/L	1	BH52707	08/27/2015	08/27/2015	SM 2540C

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Tucson Water Quality Lab  
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(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454A**  
**L151032-03 (Aqueous)**

Sampled:  
08/27/2015 8:38

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Wet Chemistry**

<b>TOTAL ORGANIC CARBON</b>	<b>0.42</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454B**  
**L151032-04 (Aqueous)**

Sampled:  
 08/27/2015 8:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/10/2015	EPA 350.1	M2
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454B**  
**L151032-04 (Aqueous)**

Sampled:  
 08/27/2015 8:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454B**  
**L151032-04 (Aqueous)**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	91 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	105 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	101 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454B**  
**L151032-04 (Aqueous)**

Sampled:  
 08/27/2015 8:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0571</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>42.6</b>	2.00	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>ND</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>32.5</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	<b>ND</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>2.30</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.00553</b>	0.00100	mg/L	1	BI50210	08/31/2015	09/02/2015	EPA 200.8
LEAD	<b>ND</b>	0.00100	mg/L	1	BI50210	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>309</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>309</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>1.95</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>0.819</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	<b>4.81</b>	0.250	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	<b>ND</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	<b>ND</b>	0.200	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
SULFATE	<b>202</b>	5.00	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>1040</b>	10.0	mg/L	1	BH52708	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>1.08</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-454B**

**L151032-04RE1 (Aqueous)**

Sampled:  
08/27/2015 8:55

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

SODIUM	300	10.0	mg/L	5	BI50203	08/31/2015	09/01/2015	EPA 200.7
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**Wet Chemistry**

CHLORIDE	242	15.0	mg/L	5	BH52801	08/27/2015	08/27/2015	EPA 300.0
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**  
**L151032-05 (Aqueous)**

Sampled:  
 08/27/2015 9:31

Analyte	Result	Reporting					Prepared	Analyzed	Method	Notes
		Limit	Units	Dilution	Batch					

**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/14/2015	EPA 350.1	N1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**  
**L151032-05 (Aqueous)**

Sampled:  
 08/27/2015 9:31

Analyte	Result	Reporting						Method	Notes
		Limit	Units	Dilution	Batch	Prepared	Analyzed		

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	<b>0.0016</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	<b>0.0012</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**  
**L151032-05 (Aqueous)**

Sampled:  
 08/27/2015 9:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<b>TETRACHLOROETHENE</b>	<b>0.0042</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<b>TOTAL TRIHALOMETHANES</b>	<b>0.0016</b>	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	90 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	106 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	100 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**  
**L151032-05 (Aqueous)**

Sampled:  
 08/27/2015 9:31

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0308</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>21.3</b>	2.00	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
IRON	<b>ND</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>14.0</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	<b>ND</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>10.6</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

LEAD	ND	0.00100	mg/L	1	BI50210	08/31/2015	09/02/2015	EPA 200.8
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**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>242</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>242</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>2.76</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>1.43</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	<b>ND</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	<b>ND</b>	0.200	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
SULFATE	<b>113</b>	5.00	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>995</b>	10.0	mg/L	1	BH52708	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>1.10</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**

**L151032-05RE1 (Aqueous)**

**Sampled:**

08/27/2015 9:31

Analytic	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICPMS**

ARSENIC	<b>0.0240</b>	0.00500	mg/L	5	BI50210	08/31/2015	09/02/2015	EPA 200.8
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**Wet Chemistry**

CHLORIDE	<b>245</b>	15.0	mg/L	5	BH52801	08/27/2015	08/27/2015	EPA 300.0
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NITRATE AS N	<b>22.9</b>	1.25	mg/L	5	BH52801	08/27/2015	08/27/2015	EPA 300.0
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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-449A**

**L151032-05RE2 (Aqueous)**

Sampled:

08/27/2015 9:31

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

SODIUM	318	10.0	mg/L	5	BI50203	08/31/2015	09/01/2015	EPA 200.7	M4
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448A**  
**L151032-06 (Aqueous)**

Sampled:  
 08/27/2015 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	ND	0.05	mg/L	1	'[none]'	09/14/2015	EPA 350.1	N1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448A**  
**L151032-06 (Aqueous)**

Sampled:  
 08/27/2015 10:30

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXAChLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448A**  
**L151032-06 (Aqueous)**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	92 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	104 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	100 %	70-130			BH52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448A**  
**L151032-06 (Aqueous)**

Sampled:  
 08/27/2015 10:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	ND	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
CALCIUM	<b>38.9</b>	2.00	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
IRON	ND	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	<b>24.6</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	ND	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>2.91</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.0216</b>	0.00200	mg/L	2	BI50210	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.00200	mg/L	2	BI50210	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>238</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>238</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
BROMIDE	<b>3.11</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
FLUORIDE	<b>1.50</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	<b>5.39</b>	0.250	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	0.200	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
<b>TOTAL DISSOLVED SOLIDS</b>	<b>3150</b>	10.0	mg/L	1	BH52708	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	ND	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448A**

**L151032-06RE1 (Aqueous)**

Sampled:

08/27/2015 10:30

Analyte	Result	Reporting		Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

SODIUM	1040	20.0	mg/L	10	BI50203	08/31/2015	09/01/2015	EPA 200.7
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**Wet Chemistry**

CHLORIDE	405	30.0	mg/L	10	BH52801	08/27/2015	08/27/2015	EPA 300.0
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SULFATE	1690	50.0	mg/L	10	BH52801	08/27/2015	08/27/2015	EPA 300.0
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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 10/19/2015 13:56
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**WR-448B**  
**L151032-07 (Aqueous)**

**Sampled:**  
 08/27/2015 10:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Eurofins Eaton Analytical (AZ0778)**

**Subcontracted Analyses: Wet Chemistry**

AMMONIA AS N	0.14	0.05	mg/L	1	'[none]'	09/21/2015	EPA 350.1
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448B**  
**L151032-07 (Aqueous)**

Sampled:

08/27/2015 10:45

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						

**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448B**  
**L151032-07 (Aqueous)**

Sampled:  
 08/27/2015 10:45

Analytic	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	91 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	108 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	102 %	70-130			BII52803	08/27/2015	08/27/2015	EPA 8260B

**Total Metals by ICP**

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**WR-448B**  
**L151032-07 (Aqueous)**

Sampled:  
 08/27/2015 10:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

BARIUM	<b>0.0602</b>	0.0200	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7
POTASSIUM	<b>11.2</b>	0.500	mg/L	1	BI50203	08/31/2015	09/01/2015	EPA 200.7

**Total Metals by ICPMS**

ARSENIC	<b>0.109</b>	0.0100	mg/L	10	BI50210	08/31/2015	09/02/2015	EPA 200.8
LEAD	ND	0.0100	mg/L	10	BI50210	08/31/2015	09/02/2015	EPA 200.8

**Wet Chemistry**

ALKALINITY, BICARBONATE	<b>1400</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
ALKALINITY, TOTAL	<b>1400</b>	20.0	mg/L as CaCO <sub>3</sub>	1	BI50105	08/31/2015	08/31/2015	SM 2320B
FLUORIDE	<b>1.25</b>	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRATE AS N	ND	0.250	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
NITRITE AS N	ND	0.100	mg/L	1	BH52801	08/27/2015	08/27/2015	EPA 300.0
TOTAL DISSOLVED SOLIDS	<b>18000</b>	10.0	mg/L	1	BH52708	08/27/2015	08/27/2015	SM 2540C
TOTAL ORGANIC CARBON	<b>6.69</b>	0.25	mg/L	1	BI50101	09/02/2015	09/02/2015	SM 5310

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Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**WR-448B**

**L151032-07RE1 (Aqueous)**

**Sampled:**

08/27/2015 10:45

Analyte	Result	Reporting	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Total Metals by ICP**

CALCIUM	316	50.0	mg/L	25	BI50203	08/31/2015	09/01/2015	EPA 200.7
IRON	24.3	0.500	mg/L	25	BI50203	08/31/2015	09/01/2015	EPA 200.7
MAGNESIUM	249	12.5	mg/L	25	BI50203	08/31/2015	09/01/2015	EPA 200.7
MANGANESE	7.01	0.500	mg/L	25	BI50203	08/31/2015	09/01/2015	EPA 200.7
SODIUM	4690	50.0	mg/L	25	BI50203	08/31/2015	09/01/2015	EPA 200.7

**Wet Chemistry**

BROMIDE	21.1	5.00	mg/L	50	BH52801	08/27/2015	08/27/2015	EPA 300.0
CHLORIDE	3070	150	mg/L	50	BH52801	08/27/2015	08/27/2015	EPA 300.0
ORTHO PHOSPHATE AS P	ND	10.0	mg/L	50	BH52801	08/27/2015	08/27/2015	EPA 300.0
SULFATE	6290	250	mg/L	50	BH52801	08/27/2015	08/27/2015	EPA 300.0

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**TRIP BLANK**

L151032-08 (Aqueous)

**Sampled:**  
 08/27/2015 7:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**Tucson Water Quality Laboratory**

**Volatile Organic Compounds by GC/MS**

1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,1-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,3-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
1,4-DICHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2,2-DICHLOROPROPANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
2-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-CHLOROTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B
4-ISOPROPYLTOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 10/19/2015 13:56
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**TRIP BLANK**  
**L151032-08 (Aqueous)**

**Sampled:**  
 08/27/2015 7:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Tucson Water Quality Laboratory</b>									
<b>Volatile Organic Compounds by GC/MS</b>									
BENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
BROMOBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
BROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
BROMODICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
BROMOFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
BROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CARBON TETRACHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CHLOROBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CHLOROETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CHLOROFORM	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
DIBROMOMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
DICHLOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
ETHYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
ETHYLENE DIBROMIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
HEXACHLOROBUTADIENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
ISOPROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
M/P-XYLENES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

**TRIP BLANK**  
**L151032-08 (Aqueous)**

**Sampled:**  
 08/27/2015 7:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Tucson Water Quality Laboratory</b>									
<b>Volatile Organic Compounds by GC/MS</b>									
NAPHTHALENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
N-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
N-PROPYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
ORTHO-XYLENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
SEC-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
STYRENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TERT-BUTYLBENZENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TETRACHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TOLUENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TRICHLOROETHENE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
VINYL CHLORIDE	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
XYLEMES (TOTAL)	ND	0.0005	mg/L	1	BH52803	08/27/2015	08/27/2015	EPA 8260B	
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>		90 %	70-130		BH52803	08/27/2015	08/27/2015	EPA 8260B	
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>		107 %	70-130		BH52803	08/27/2015	08/27/2015	EPA 8260B	
<i>Surrogate: TOLUENE-D8 (SURR.)</i>		101 %	70-130		BH52803	08/27/2015	08/27/2015	EPA 8260B	

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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Blank (BH52803-BLK1)										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,1-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1,2,2-TETRACHLOROETHANE	ND	0.0005	mg/L							
1,1,2-TRICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHANE	ND	0.0005	mg/L							
1,1-DICHLOROETHENE	ND	0.0005	mg/L							
1,1-DICHLOROPROPENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,3-TRICHLOROPROPANE	ND	0.0005	mg/L							
1,2,4-TRICHLOROBENZENE	ND	0.0005	mg/L							
1,2,4-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.0005	mg/L							
1,2-DICHLOROBENZENE	ND	0.0005	mg/L							
1,2-DICHLOROETHANE	ND	0.0005	mg/L							
1,2-DICHLOROPROPANE	ND	0.0005	mg/L							
1,3,5-TRIMETHYLBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROBENZENE	ND	0.0005	mg/L							
1,3-DICHLOROPROPANE	ND	0.0005	mg/L							
1,4-DICHLOROBENZENE	ND	0.0005	mg/L							
2,2-DICHLOROPROPANE	ND	0.0005	mg/L							
2-CHLOROTOLUENE	ND	0.0005	mg/L							
4-CHLOROTOLUENE	ND	0.0005	mg/L							
4-ISOPROPYLtoluene	ND	0.0005	mg/L							
BENZENE	ND	0.0005	mg/L							
BROMOBENZENE	ND	0.0005	mg/L							

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Blank (BH52803-BLK1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE	ND	0.0005	mg/L							
BROMODICHLOROMETHANE	ND	0.0005	mg/L							
BROMOFORM	ND	0.0005	mg/L							
BROMOMETHANE	ND	0.0005	mg/L							
CARBON TETRACHLORIDE	ND	0.0005	mg/L							
CHLOROBENZENE	ND	0.0005	mg/L							
CHLOROETHANE	ND	0.0005	mg/L							
CHLOROFORM	ND	0.0005	mg/L							
CHLOROMETHANE	ND	0.0005	mg/L							
CIS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
CIS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
DIBROMOCHLOROMETHANE	ND	0.0005	mg/L							
DIBROMOMETHANE	ND	0.0005	mg/L							
DICHLORODIFLUOROMETHANE	ND	0.0005	mg/L							
DICHLOROMETHANE	ND	0.0005	mg/L							
ETHYLBENZENE	ND	0.0005	mg/L							
ETHYLENE DIBROMIDE	ND	0.0005	mg/L							
HEXACHLOROBUTADIENE	ND	0.0005	mg/L							
ISOPROPYLBENZENE	ND	0.0005	mg/L							
M/P-XYLENES	ND	0.0005	mg/L							
METHYL-TERT-BUTYL ETHER	ND	0.0005	mg/L							
NAPHTHALENE	ND	0.0005	mg/L							
N-BUTYLBENZENE	ND	0.0005	mg/L							
N-PROPYLBENZENE	ND	0.0005	mg/L							
ORTHO-XYLENE	ND	0.0005	mg/L							
SEC-BUTYLBENZENE	ND	0.0005	mg/L							

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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Volatile Organic Compounds by GC/MS - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
Blank (BH52803-BLK1)										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
STYRENE	ND	0.0005	mg/L							
TERT-BUTYLBENZENE	ND	0.0005	mg/L							
TETRACHLOROETHENE	ND	0.0005	mg/L							
TOLUENE	ND	0.0005	mg/L							
TOTAL TRIHALOMETHANES	ND	0.0005	mg/L							
TRANS-1,2-DICHLOROETHENE	ND	0.0005	mg/L							
TRANS-1,3-DICHLOROPROPENE	ND	0.0005	mg/L							
TRICHLOROETHENE	ND	0.0005	mg/L							
TRICHLOROFLUOROMETHANE	ND	0.0005	mg/L							
VINYL CHLORIDE	ND	0.0005	mg/L							
XYLENES (TOTAL)	ND	0.0005	mg/L							
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	4.46		ug/L		5.00		89		70-130	
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	4.97		ug/L		5.00		99		70-130	
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.11		ug/L		5.00		102		70-130	

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 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike (BH52803-MS1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.89		ug/L	5.00	ND	98	70-130			
1,1,1-TRICHLOROETHANE	5.41		ug/L	5.00	ND	108	70-130			
1,1,2,2-TETRACHLOROETHANE	4.79		ug/L	5.00	ND	96	70-130			
1,1,2-TRICHLOROETHANE	5.19		ug/L	5.00	ND	104	70-130			
1,1-DICHLOROETHANE	5.68		ug/L	5.00	ND	114	70-130			
1,1-DICHLOROETHENE	5.92		ug/L	5.00	ND	118	70-130			
1,1-DICHLOROPROPENE	5.64		ug/L	5.00	ND	113	70-130			
1,2,3-TRICHLOROBENZENE	4.36		ug/L	5.00	ND	87	70-130			
1,2,3-TRICHLOROPROPANE	4.56		ug/L	5.00	ND	91	70-130			
1,2,4-TRICHLOROBENZENE	4.25		ug/L	5.00	ND	85	70-130			
1,2,4-TRIMETHYLBENZENE	4.80		ug/L	5.00	ND	96	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	4.21		ug/L	5.00	ND	84	70-130			
1,2-DICHLOROBENZENE	4.57		ug/L	5.00	ND	91	70-130			
1,2-DICHLOROETHANE	5.49		ug/L	5.00	ND	110	70-130			
1,2-DICHLOROPROPANE	5.23		ug/L	5.00	ND	105	70-130			
1,3,5-TRIMETHYLBENZENE	4.74		ug/L	5.00	ND	95	70-130			
1,3-DICHLOROBENZENE	4.95		ug/L	5.00	ND	99	70-130			
1,3-DICHLOROPROPANE	5.00		ug/L	5.00	ND	100	70-130			
1,4-DICHLOROBENZENE	4.69		ug/L	5.00	ND	94	70-130			
2,2-DICHLOROPROPANE	5.46		ug/L	5.00	ND	109	70-130			
2-CHLOROTOLUENE	4.99		ug/L	5.00	ND	100	70-130			
4-CHLOROTOLUENE	4.98		ug/L	5.00	ND	100	70-130			
4-ISOPROPYLtoluene	4.65		ug/L	5.00	ND	93	70-130			
BENZENE	5.37		ug/L	5.00	ND	107	70-130			
BROMOBENZENE	4.66		ug/L	5.00	ND	93	70-130			

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike (BH52803-MS1)</b>										
<b>Source: L151032-01</b>										
Prepared & Analyzed: 08/27/2015										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
BROMOCHLOROMETHANE	5.32		ug/L	5.00	ND	106	70-130			
BROMODICHLOROMETHANE	4.62		ug/L	5.00	ND	92	70-130			
BROMOFORM	4.20		ug/L	5.00	ND	84	70-130			
BROMOMETHANE	5.11		ug/L	5.00	ND	102	70-130			
CARBON TETRACHLORIDE	5.36		ug/L	5.00	ND	107	70-130			
CHLOROBENZENE	4.87		ug/L	5.00	ND	97	70-130			
CHLOROETHANE	6.14		ug/L	5.00	ND	123	70-130			
CHLOROFORM	5.49		ug/L	5.00	ND	110	70-130			
CHLOROMETHANE	4.55		ug/L	5.00	ND	91	70-130			
CIS-1,2-DICHLOROETHENE	5.35		ug/L	5.00	ND	107	70-130			
CIS-1,3-DICHLOROPROPENE	5.07		ug/L	5.00	ND	101	70-130			
DIBROMOCHLOROMETHANE	4.85		ug/L	5.00	ND	97	70-130			
DIBROMOMETHANE	5.13		ug/L	5.00	ND	103	70-130			
DICHLORODIFLUOROMETHANE	4.63		ug/L	5.00	ND	93	70-130			
DICHLOROMETHANE	5.46		ug/L	5.00	ND	109	70-130			
ETHYLBENZENE	4.66		ug/L	5.00	ND	93	70-130			
ETHYLENE DIBROMIDE	5.22		ug/L	5.00	ND	104	70-130			
HEXACHLOROBUTADIENE	4.82		ug/L	5.00	ND	96	70-130			
ISOPROPYLBENZENE	4.95		ug/L	5.00	ND	99	70-130			
M/P-XYLENES	9.82		ug/L	10.0	ND	98	70-130			
METHYL-TERT-BUTYL ETHER	5.17		ug/L	5.00	ND	103	70-130			
NAPHTHALENE	4.27		ug/L	5.00	ND	85	70-130			
N-BUTYLBENZENE	4.57		ug/L	5.00	ND	91	70-130			
N-PROPYLBENZENE	5.06		ug/L	5.00	ND	101	70-130			
ORTHO-XYLENE	4.73		ug/L	5.00	ND	95	70-130			
SEC-BUTYLBENZENE	5.08		ug/L	5.00	ND	102	70-130			

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike (BH52803-MS1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
STYRENE	4.30		ug/L	5.00	ND	86	70-130			
TERT-BUTYLBENZENE	4.81		ug/L	5.00	ND	96	70-130			
TETRACHLOROETHENE	5.41		ug/L	5.00	ND	108	70-130			
TOLUENE	5.10		ug/L	5.00	ND	102	70-130			
TRANS-1,2-DICHLOROETHENE	5.49		ug/L	5.00	ND	110	70-130			
TRANS-1,3-DICHLOROPROPENE	5.45		ug/L	5.00	ND	109	70-130			
TRICHLOROETHENE	5.21		ug/L	5.00	ND	104	70-130			
TRICHLOROFLUOROMETHANE	6.14		ug/L	5.00	ND	123	70-130			
VINYL CHLORIDE	4.77		ug/L	5.00	ND	95	70-130			
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.15		ug/L	5.00		103	70-130			
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.44		ug/L	5.00		109	70-130			
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	4.96		ug/L	5.00		99	70-130			

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-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.78		ug/L	5.00	ND	96	70-130	2	20	
1,1,1-TRICHLOROETHANE	5.18		ug/L	5.00	ND	104	70-130	4	20	
1,1,2,2-TETRACHLOROETHANE	4.71		ug/L	5.00	ND	94	70-130	2	20	
1,1,2-TRICHLOROETHANE	5.14		ug/L	5.00	ND	103	70-130	1	20	
1,1-DICHLOROETHANE	5.45		ug/L	5.00	ND	109	70-130	4	20	
1,1-DICHLOROETHENE	5.73		ug/L	5.00	ND	115	70-130	3	20	
1,1-DICHLOROPROPENE	5.37		ug/L	5.00	ND	107	70-130	5	20	
1,2,3-TRICHLOROBENZENE	4.40		ug/L	5.00	ND	88	70-130	0.9	20	
1,2,3-TRICHLOROPROPANE	4.55		ug/L	5.00	ND	91	70-130	0.2	20	
1,2,4-TRICHLOROBENZENE	4.31		ug/L	5.00	ND	86	70-130	1	20	
1,2,4-TRIMETHYLBENZENE	4.58		ug/L	5.00	ND	92	70-130	5	20	
1,2-DIBROMO-3-CHLOROPROPANE	4.07		ug/L	5.00	ND	81	70-130	3	20	
1,2-DICHLOROBENZENE	4.70		ug/L	5.00	ND	94	70-130	3	20	
1,2-DICHLOROETHANE	5.33		ug/L	5.00	ND	107	70-130	3	20	
1,2-DICHLOROPROPANE	5.10		ug/L	5.00	ND	102	70-130	3	20	
1,3,5-TRIMETHYLBENZENE	4.51		ug/L	5.00	ND	90	70-130	5	20	
1,3-DICHLOROBENZENE	4.77		ug/L	5.00	ND	95	70-130	4	20	
1,3-DICHLOROPROPANE	4.82		ug/L	5.00	ND	96	70-130	4	20	
1,4-DICHLOROBENZENE	4.70		ug/L	5.00	ND	94	70-130	0.2	20	
2,2-DICHLOROPROPANE	5.32		ug/L	5.00	ND	106	70-130	3	20	
2-CHLOROTOLUENE	4.74		ug/L	5.00	ND	95	70-130	5	20	
4-CHLOROTOLUENE	4.65		ug/L	5.00	ND	93	70-130	7	20	
4-ISOPROPYLtoluene	4.67		ug/L	5.00	ND	93	70-130	0.4	20	
BENZENE	5.15		ug/L	5.00	ND	103	70-130	4	20	
BROMOBENZENE	4.52		ug/L	5.00	ND	90	70-130	3	20	

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>									
<b>Source: L151032-01</b>									
<b>Prepared &amp; Analyzed: 08/27/2015</b>									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>									
BROMOCHLOROMETHANE	5.23		ug/L	5.00	ND	105	70-130	2	20
BROMODICHLOROMETHANE	4.74		ug/L	5.00	ND	95	70-130	3	20
BROMOFORM	4.18		ug/L	5.00	ND	84	70-130	0.5	20
BROMOMETHANE	4.84		ug/L	5.00	ND	97	70-130	5	20
CARBON TETRACHLORIDE	5.25		ug/L	5.00	ND	105	70-130	2	20
CHLOROBENZENE	4.66		ug/L	5.00	ND	93	70-130	4	20
CHLOROETHANE	5.90		ug/L	5.00	ND	118	70-130	4	20
CHLOROFORM	5.25		ug/L	5.00	ND	105	70-130	4	20
CHLOROMETHANE	4.37		ug/L	5.00	ND	87	70-130	4	20
CIS-1,2-DICHLOROETHENE	5.23		ug/L	5.00	ND	105	70-130	2	20
CIS-1,3-DICHLOROPROPENE	4.96		ug/L	5.00	ND	99	70-130	2	20
DIBROMOCHLOROMETHANE	4.82		ug/L	5.00	ND	96	70-130	0.6	20
DIBROMOMETHANE	5.09		ug/L	5.00	ND	102	70-130	0.8	20
DICHLORODIFLUOROMETHANE	4.35		ug/L	5.00	ND	87	70-130	6	20
DICHLOROMETHANE	5.28		ug/L	5.00	ND	106	70-130	3	20
ETHYLBENZENE	4.41		ug/L	5.00	ND	88	70-130	6	20
ETHYLENE DIBROMIDE	5.03		ug/L	5.00	ND	101	70-130	4	20
HEXACHLOROBUTADIENE	4.83		ug/L	5.00	ND	97	70-130	0.2	20
ISOPROPYLBENZENE	4.69		ug/L	5.00	ND	94	70-130	5	20
M/P-XYLENES	9.43		ug/L	10.0	ND	94	70-130	4	20
METHYL-TERT-BUTYL ETHER	5.16		ug/L	5.00	ND	103	70-130	0.2	20
NAPHTHALENE	4.31		ug/L	5.00	ND	86	70-130	0.9	20
N-BUTYLBENZENE	4.58		ug/L	5.00	ND	92	70-130	0.2	20
N-PROPYLBENZENE	4.79		ug/L	5.00	ND	96	70-130	5	20
ORTHO-XYLENE	4.59		ug/L	5.00	ND	92	70-130	3	20
SEC-BUTYLBENZENE	4.76		ug/L	5.00	ND	95	70-130	7	20

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-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BH52803-MSD1)</b>										
<b>Source: L151032-01</b>										
<b>Prepared &amp; Analyzed: 08/27/2015</b>										
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
STYRENE	3.85		ug/L	5.00	ND	77	70-130	11	20	
TERT-BUTYLBENZENE	4.60		ug/L	5.00	ND	92	70-130	4	20	
TETRACHLOROETHENE	5.18		ug/L	5.00	ND	104	70-130	4	20	
TOLUENE	5.00		ug/L	5.00	ND	100	70-130	2	20	
TRANS-1,2-DICHLOROETHENE	5.29		ug/L	5.00	ND	106	70-130	4	20	
TRANS-1,3-DICHLOROPROPENE	5.52		ug/L	5.00	ND	110	70-130	1	20	
TRICHLOROETHENE	5.15		ug/L	5.00	ND	103	70-130	1	20	
TRICHLOROFLUOROMETHANE	5.92		ug/L	5.00	ND	118	70-130	4	20	
VINYL CHLORIDE	4.62		ug/L	5.00	ND	92	70-130	3	20	
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	4.92		ug/L	5.00		98	70-130			
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.37		ug/L	5.00		107	70-130			
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.03		ug/L	5.00		101	70-130			

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Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
<b>Reference (BH52803-SRM1)</b>										Prepared & Analyzed: 08/27/2015
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>										
1,1,1,2-TETRACHLOROETHANE	4.50		ug/L	5.00		90	70-130			
1,1,1-TRICHLOROETHANE	4.97		ug/L	5.00		99	70-130			
1,1,2,2-TETRACHLOROETHANE	4.66		ug/L	5.00		93	70-130			
1,1,2-TRICHLOROETHANE	5.19		ug/L	5.00		104	70-130			
1,1-DICHLOROETHANE	5.43		ug/L	5.00		109	70-130			
1,1-DICHLOROETHENE	5.53		ug/L	5.00		111	70-130			
1,1-DICHLOROPROPENE	5.22		ug/L	5.00		104	70-130			
1,2,3-TRICHLOROBENZENE	4.38		ug/L	5.00		88	70-130			
1,2,3-TRICHLOROPROPANE	4.70		ug/L	5.00		94	70-130			
1,2,4-TRICHLOROBENZENE	4.30		ug/L	5.00		86	70-130			
1,2,4-TRIMETHYLBENZENE	4.65		ug/L	5.00		93	70-130			
1,2-DIBROMO-3-CHLOROPROPANE	3.74		ug/L	5.00		75	70-130			
1,2-DICHLOROBENZENE	4.65		ug/L	5.00		93	70-130			
1,2-DICHLOROETHANE	5.47		ug/L	5.00		109	70-130			
1,2-DICHLOROPROPANE	5.16		ug/L	5.00		103	70-130			
1,3,5-TRIMETHYLBENZENE	4.48		ug/L	5.00		90	70-130			
1,3-DICHLOROBENZENE	4.81		ug/L	5.00		96	70-130			
1,3-DICHLOROPROPANE	5.00		ug/L	5.00		100	70-130			
1,4-DICHLOROBENZENE	4.75		ug/L	5.00		95	70-130			
2,2-DICHLOROPROPANE	5.18		ug/L	5.00		104	70-130			
2-CHLOROTOLUENE	4.72		ug/L	5.00		94	70-130			
4-CHLOROTOLUENE	4.64		ug/L	5.00		93	70-130			
4-ISOPROPYLtoluene	4.63		ug/L	5.00		93	70-130			
BENZENE	5.25		ug/L	5.00		105	70-130			
BROMOBENZENE	4.53		ug/L	5.00		91	70-130			

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### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes	
<b>Reference (BH52803-SRM1)</b>		Prepared & Analyzed: 08/27/2015									
<b>Batch BH52803 - DEFAULT ORGANIC PREP</b>											
BROMOCHLOROMETHANE	5.19		ug/L	5.00		104	70-130				
BROMODICHLOROMETHANE	4.24		ug/L	5.00		85	70-130				
BROMOFORM	3.89		ug/L	5.00		78	70-130				
BROMOMETHANE	5.25		ug/L	5.00		105	70-130				
CARBON TETRACHLORIDE	4.76		ug/L	5.00		95	70-130				
CHLOROBENZENE	4.65		ug/L	5.00		93	70-130				
CHLOROETHANE	6.05		ug/L	5.00		121	70-130				
CHLOROFORM	5.23		ug/L	5.00		105	70-130				
CHLOROMETHANE	4.43		ug/L	5.00		89	70-130				
CIS-1,2-DICHLOROETHENE	5.07		ug/L	5.00		101	70-130				
CIS-1,3-DICHLOROPROPENE	4.86		ug/L	5.00		97	70-130				
DIBROMOCHLOROMETHANE	4.57		ug/L	5.00		91	70-130				
DIBROMOMETHANE	5.04		ug/L	5.00		101	70-130				
DICHLORODIFLUOROMETHANE	4.61		ug/L	5.00		92	70-130				
DICHLOROMETHANE	5.44		ug/L	5.00		109	70-130				
ETHYLBENZENE	4.41		ug/L	5.00		88	70-130				
ETHYLENE DIBROMIDE	5.01		ug/L	5.00		100	70-130				
HEXACHLOROBUTADIENE	4.63		ug/L	5.00		93	70-130				
ISOPROPYLBENZENE	4.63		ug/L	5.00		93	70-130				
M/P-XYLENES	9.49		ug/L	10.0		95	70-130				
METHYL-TERT-BUTYL ETHER	5.34		ug/L	5.00		107	70-130				
NAPHTHALENE	4.46		ug/L	5.00		89	70-130				
N-BUTYLBENZENE	4.50		ug/L	5.00		90	70-130				
N-PROPYLBENZENE	4.77		ug/L	5.00		95	70-130				
ORTHO-XYLENE	4.57		ug/L	5.00		91	70-130				
SEC-BUTYLBENZENE	4.81		ug/L	5.00		96	70-130				

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Tucson Water Quality Lab  
 4401 S. Tucson Estates Pkwy.  
 Tucson, AZ 85735  
 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Volatile Organic Compounds by GC/MS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Reference (BH52803-SRM1)

Prepared & Analyzed: 08/27/2015

#### Batch BH52803 - DEFAULT ORGANIC PREP

STYRENE	4.61	ug/L	5.00	92	70-130
TERT-BUTYLBENZENE	4.69	ug/L	5.00	94	70-130
TETRACHLOROETHENE	5.09	ug/L	5.00	102	70-130
TOLUENE	5.02	ug/L	5.00	100	70-130
TRANS-1,2-DICHLOROETHENE	5.07	ug/L	5.00	101	70-130
TRANS-1,3-DICHLOROPROPENE	5.45	ug/L	5.00	109	70-130
TRICHLOROETHENE	4.95	ug/L	5.00	99	70-130
TRICHLOROFLUOROMETHANE	5.92	ug/L	5.00	118	70-130
VINYL CHLORIDE	4.68	ug/L	5.00	94	70-130
<i>Surrogate: BROMOFLUOROBENZENE (SURR.)</i>	5.08	ug/L	5.00	102	70-130
<i>Surrogate: DIBROMOFLUOROMETHANE (SURR.)</i>	5.35	ug/L	5.00	107	70-130
<i>Surrogate: TOLUENE-D8 (SURR.)</i>	5.09	ug/L	5.00	102	70-130

### Total Metals by ICP - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Tucson Water Quality Lab  
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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Total Metals by ICP - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Blank (B150202-BLK1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch B150202 - EPA 200.7/200.8**

BARIUM	ND	0.0200	mg/L							
CALCIUM	ND	2.00	mg/L							
IRON	ND	0.0200	mg/L							
MAGNESIUM	ND	0.500	mg/L							
MANGANESE	ND	0.0200	mg/L							
POTASSIUM	ND	0.500	mg/L							
SODIUM	ND	2.00	mg/L							

**LCS (B150202-BS1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch B150202 - EPA 200.7/200.8**

BARIUM	0.205	0.0200	mg/L	0.200	103	85-115
CALCIUM	20.6	2.00	mg/L	20.0	103	85-115
IRON	1.01	0.0200	mg/L	1.00	101	85-115
MAGNESIUM	5.15	0.500	mg/L	5.00	103	85-115
MANGANESE	0.206	0.0200	mg/L	0.200	103	85-115
POTASSIUM	2.13	0.500	mg/L	2.00	107	85-115
SODIUM	20.7	2.00	mg/L	20.0	104	85-115

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 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Total Metals by ICP - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>Matrix Spike (B150202-MS1)</b>									
<b>Source: L151032-03 Prepared: 08/31/2015 Analyzed: 09/01/2015</b>									
<b>Batch B150202 - EPA 200.7/200.8</b>									
BARIUM	0.248	0.0200	mg/L	0.200	0.0422	103	70-130		
CALCIUM	32.1	2.00	mg/L	20.0	12.3	98.9	70-130		
IRON	1.04	0.0200	mg/L	1.00	0.0274	101	70-130		
MAGNESIUM	9.34	0.500	mg/L	5.00	4.21	103	70-130		
MANGANESE	0.207	0.0200	mg/L	0.200	0.000368	103	70-130		
POTASSIUM	3.34	0.500	mg/L	2.00	1.26	104	70-130		
SODIUM	183	2.00	mg/L	20.0	164	97.3	70-130		
<b>Matrix Spike Dup (B150202-MSD1)</b>									
<b>Source: L151032-03 Prepared: 08/31/2015 Analyzed: 09/01/2015</b>									
<b>Batch B150202 - EPA 200.7/200.8</b>									
BARIUM	0.249	0.0200	mg/L	0.200	0.0422	104	70-130	0.388	10
CALCIUM	32.1	2.00	mg/L	20.0	12.3	98.6	70-130	0.180	10
IRON	1.04	0.0200	mg/L	1.00	0.0274	102	70-130	0.279	10
MAGNESIUM	9.32	0.500	mg/L	5.00	4.21	102	70-130	0.241	10
MANGANESE	0.207	0.0200	mg/L	0.200	0.000368	103	70-130	0.283	10
POTASSIUM	3.39	0.500	mg/L	2.00	1.26	107	70-130	1.52	10
SODIUM	183	2.00	mg/L	20.0	164	97.0	70-130	0.0296	10

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Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

**Total Metals by ICP - Quality Control**

**Tucson Water Quality Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Blank (BI50203-BLK1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch BI50203 - EPA 200.7/200.8**

BARIUM	ND	0.0200	mg/L							
CALCIUM	ND	2.00	mg/L							
IRON	ND	0.0200	mg/L							
MAGNESIUM	ND	0.500	mg/L							
MANGANESE	ND	0.0200	mg/L							
POTASSIUM	ND	0.500	mg/L							
SODIUM	ND	2.00	mg/L							

**LCS (BI50203-BS1)**

Prepared: 08/31/2015 Analyzed: 09/01/2015

**Batch BI50203 - EPA 200.7/200.8**

BARIUM	0.206	0.0200	mg/L	0.200	103	85-115
CALCIUM	20.5	2.00	mg/L	20.0	102	85-115
IRON	1.02	0.0200	mg/L	1.00	102	85-115
MAGNESIUM	5.12	0.500	mg/L	5.00	102	85-115
MANGANESE	0.208	0.0200	mg/L	0.200	104	85-115
POTASSIUM	2.18	0.500	mg/L	2.00	109	85-115
SODIUM	20.4	2.00	mg/L	20.0	102	85-115

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Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 10/19/2015 13:56
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### Total Metals by ICP - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Matrix Spike (BI50203-MS1)      Source: L151032-05      Prepared: 08/31/2015 Analyzed: 09/01/2015

#### Batch BI50203 - EPA 200.7/200.8

BARIUM	0.237	0.0200	mg/L	0.200	0.0308	103	70-130		
CALCIUM	41.2	2.00	mg/L	20.0	21.3	99.5	70-130		
IRON	1.02	0.0200	mg/L	1.00	0.00255	101	70-130		
MAGNESIUM	19.4	0.500	mg/L	5.00	14.0	108	70-130		
MANGANESE	0.207	0.0200	mg/L	0.200	0.000196	104	70-130		
POTASSIUM	12.6	0.500	mg/L	2.00	10.6	104	70-130		

Matrix Spike Dup (BI50203-MSD1)      Source: L151032-05      Prepared: 08/31/2015 Analyzed: 09/01/2015

#### Batch BI50203 - EPA 200.7/200.8

BARIUM	0.240	0.0200	mg/L	0.200	0.0308	105	70-130	1.22	10
CALCIUM	40.5	2.00	mg/L	20.0	21.3	96.4	70-130	1.54	10
IRON	1.02	0.0200	mg/L	1.00	0.00255	102	70-130	0.281	10
MAGNESIUM	19.1	0.500	mg/L	5.00	14.0	102	70-130	1.73	10
MANGANESE	0.208	0.0200	mg/L	0.200	0.000196	104	70-130	0.293	10
POTASSIUM	12.7	0.500	mg/L	2.00	10.6	106	70-130	0.281	10

### Total Metals by ICPMS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Blank (BI50209-BLK1)      Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50209 - EPA 200.7/200.8

ARSENIC	ND	0.00100	mg/L						
LEAD	ND	0.00100	mg/L						

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**Tucson, AZ 85735**  
**(520) 837-2455**

Environmental Services - Tucson AZ, 85726	Project: Tumamoc Landfill Project Number: P01025 Project Manager: Arturo Burgos	Reported: 10/19/2015 13:56
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### Total Metals by ICPMS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Limit Notes
<b>LCS (B150209-BS1)</b>		Prepared: 08/31/2015 Analyzed: 09/02/2015							
<b>Batch B150209 - EPA 200.7/200.8</b>									
ARSENIC	0.0105	0.00100	mg/L	0.0100		105	85-115		
LEAD	0.00962	0.00100	mg/L	0.0100		96.2	85-115		
<b>Matrix Spike (B150209-MS1)</b>		<b>Source: L151032-03</b>		Prepared: 08/31/2015 Analyzed: 09/02/2015					
<b>Batch B150209 - EPA 200.7/200.8</b>									
ARSENIC	0.0123	0.00100	mg/L	0.0100	0.00235	100	70-130		
LEAD	0.00931	0.00100	mg/L	0.0100	0.000125	91.9	70-130		
<b>Matrix Spike Dup (B150209-MSD1)</b>		<b>Source: L151032-03</b>		Prepared: 08/31/2015 Analyzed: 09/02/2015					
<b>Batch B150209 - EPA 200.7/200.8</b>									
ARSENIC	0.0126	0.00100	mg/L	0.0100	0.00235	102	70-130	1.85	10
LEAD	0.00947	0.00100	mg/L	0.0100	0.000125	93.5	70-130	1.72	10
<b>Blank (B150210-BLK1)</b>		Prepared: 08/31/2015 Analyzed: 09/02/2015							
<b>Batch B150210 - EPA 200.7/200.8</b>									
ARSENIC	ND	0.00100	mg/L						
LEAD	ND	0.00100	mg/L						

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 (520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Total Metals by ICPMS - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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LCS (BI50210-BS1) Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50210 - EPA 200.7/200.8

ARSENIC	0.0104	0.00100	mg/L	0.0100		104	85-115
LEAD	0.0104	0.00100	mg/L	0.0100		104	85-115

Matrix Spike (BI50210-MS1) Source: L151032-05 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50210 - EPA 200.7/200.8

LEAD	0.00966	0.00100	mg/L	0.0100	0.000211	94.5	70-130
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Matrix Spike (BI50210-MS2) Source: L151032-05RE1 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50210 - EPA 200.7/200.8

ARSENIC	0.0360	0.00500	mg/L	0.0100	0.0240	121	70-130
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Matrix Spike Dup (BI50210-MSD1) Source: L151032-05 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50210 - EPA 200.7/200.8

LEAD	0.00965	0.00100	mg/L	0.0100	0.000211	94.4	70-130	0.124	10
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Matrix Spike Dup (BI50210-MSD2) Source: L151032-05RE1 Prepared: 08/31/2015 Analyzed: 09/02/2015

#### Batch BI50210 - EPA 200.7/200.8

ARSENIC	0.0354	0.00500	mg/L	0.0100	0.0240	115	70-130	1.63	10
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### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Duplicate (BH52707-DUP1)                      Source: L151029-03                      Prepared & Analyzed: 08/27/2015

#### Batch BH52707 - Default Prep - Wet Chemistry

TOTAL DISSOLVED SOLIDS	1820	10.0	mg/L	1800	0.663	5
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Duplicate (BH52708-DUP1)                      Source: L151032-04                      Prepared & Analyzed: 08/27/2015

#### Batch BH52708 - Default Prep - Wet Chemistry

TOTAL DISSOLVED SOLIDS	1040	10.0	mg/L	1040	0.192	5
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Matrix Spike (BH52801-MS1)                      Source: L151032-01                      Prepared & Analyzed: 08/27/2015

#### Batch BH52801 - Default Prep - Wet Chemistry

BROMIDE	1.5	0.104	mg/L	0.833	0.7	98.7	80-120
CHLORIDE	121	3.12	mg/L	41.7	79.2	101	80-120
FLUORIDE	1.8	0.104	mg/L	0.833	1.0	102	80-120
NITRATE AS N	5.0	0.260	mg/L	4.17	0.9	99.4	80-120
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	97.4	80-120
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	96.1	80-120
SULFATE	99.7	5.21	mg/L	41.7	56.8	103	80-120

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	Notes
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**Matrix Spike Dup (BH52801-MSD1)**      Source: L151032-01      Prepared & Analyzed: 08/27/2015

#### Batch BH52801 - Default Prep - Wet Chemistry

BROMIDE	1.5	0.104	mg/L	0.833	0.7	98.2	80-120	0.290	10
CHLORIDE	121	3.12	mg/L	41.7	79.2	101	80-120	0.123	10
FLUORIDE	1.8	0.104	mg/L	0.833	1.0	101	80-120	0.374	10
NITRATE AS N	5.0	0.260	mg/L	4.17	0.9	99.9	80-120	0.390	10
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	97.8	80-120	0.403	10
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	96.5	80-120	0.389	10
SULFATE	99.8	5.21	mg/L	41.7	56.8	103	80-120	0.174	10

**Matrix Spike (BH52802-MS1)**      Source: L151032-02      Prepared & Analyzed: 08/27/2015

#### Batch BH52802 - Default Prep - Wet Chemistry

BROMIDE	1.4	0.104	mg/L	0.833	0.5	99.9	80-120		
CHLORIDE	103	3.12	mg/L	41.7	59.8	103	80-120		
FLUORIDE	1.6	0.104	mg/L	0.833	0.7	108	80-120		
NITRATE AS N	6.9	0.260	mg/L	4.17	2.8	99.1	80-120		
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	97.9	80-120		
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	98.9	80-120		
SULFATE	96.6	5.21	mg/L	41.7	53.7	103	80-120		

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Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Matrix Spike Dup (BH52802-MSD1)**      Source: L151032-02      Prepared & Analyzed: 08/27/2015

#### Batch BH52802 - Default Prep - Wet Chemistry

BROMIDE	1.4	0.104	mg/L	0.833	0.5	100	80-120	0.0837	10
CHLORIDE	103	3.12	mg/L	41.7	59.8	103	80-120	0.156	10
FLUORIDE	1.6	0.104	mg/L	0.833	0.7	108	80-120	0.0911	10
NITRATE AS N	6.9	0.260	mg/L	4.17	2.8	99.6	80-120	0.267	10
NITRITE AS N	1.5	0.104	mg/L	1.56	ND	98.1	80-120	0.225	10
ORTHO PHOSPHATE AS P	0.8	0.208	mg/L	0.833	ND	99.5	80-120	0.542	10
SULFATE	96.8	5.21	mg/L	41.7	53.7	103	80-120	0.157	10

#### Blank (BI50101-BLK1)

Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	ND	0.25	mg/L
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#### Blank (BI50101-BLK2)

Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	ND	0.25	mg/L
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#### Blank (BI50101-BLK3)

Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON	ND	0.25	mg/L
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Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
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**Blank (BI50101-BLK4)** Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

**Blank (BI50101-BLK5)** Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON ND 0.25 mg/L

**LCS (BI50101-BS1)** Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 5.00 mg/L 5.00 100 90-110

**LCS (BI50101-BS2)** Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 10.1 mg/L 10.0 101 90-110

**LCS (BI50101-BS3)** Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 5.04 mg/L 5.00 101 90-110

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	---------	-----------	-------

LCS (BI50101-BS4) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 10.3 mg/L 10.0 103 90-110

LCS (BI50101-BS5) Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 5.10 mg/L 5.00 102 90-110

MRL Check (BI50101-MRL1) Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 0.332 mg/L 0.250 133 50-150

Matrix Spike (BI50101-MS1) Source: L150994-02 Prepared & Analyzed: 09/01/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 1.17 mg/L 0.900 0.399 86 83-114

Matrix Spike (BI50101-MS2) Source: L151015-02 Prepared & Analyzed: 09/02/2015

#### Batch BI50101 - DEFAULT ORGANIC PREP

TOTAL ORGANIC CARBON 1.24 mg/L 0.900 0.493 83 83-114

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	Reported:
-	Project Number: P01025	10/19/2015 13:56
Tucson AZ, 85726	Project Manager: Arturo Burgos	

### Wet Chemistry - Quality Control

#### Tucson Water Quality Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	---------	-----------	-------

Duplicate (BI50105-DUP1)                      Source: L151029-06                      Prepared & Analyzed: 08/31/2015

#### Batch BI50105 - Default Prep - Wet Chemistry

ALKALINITY, TOTAL	296	20.0	mg/L as CaCO <sub>3</sub>	298	0.994	10
-------------------	-----	------	---------------------------	-----	-------	----

Matrix Spike (BI50105-MS1)                      Source: L151029-06                      Prepared & Analyzed: 08/31/2015

#### Batch BI50105 - Default Prep - Wet Chemistry

ALKALINITY, TOTAL	360	20.0	mg/L as CaCO <sub>3</sub>	59.0	298	105	80-120
-------------------	-----	------	---------------------------	------	-----	-----	--------

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Tucson Water Quality Lab  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	Reported:
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

### Certified Analyses included in this Report

Analyte	Certifications
Code	Description

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

**Tucson Water Quality Lab**  
4401 S. Tucson Estates Pkwy.  
Tucson, AZ 85735  
(520) 837-2455

Environmental Services	Project: Tumamoc Landfill	
-	Project Number: P01025	<b>Reported:</b>
Tucson AZ, 85726	Project Manager: Arturo Burgos	10/19/2015 13:56

#### **Notes and Definitions**

- N1 Associated Matrix spike recovery outside acceptance limits. Associated spiked sample not from this sample set.
- M4 The analysis of the spiked sample required a dilution such that the spike recovery calculation does not provide useful information. The associated blank spike recovery was acceptable.
- M2 Matrix spike recovery was low; the associated blank spike recovery was acceptable.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

---

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

### Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
Data included from:\\\166.89.20.134\ElementServerFolders\TransferIn\L151032 TRANSFER 09 30 2015 1712			

TUCSON WATER CHAIN OF CUSTODY

LOGIN ID: L151032

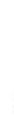
CLIENT: ES

**PROJECT NAME/FREQUENCY:**  
Tumamoc Landfill ANNUAL

PROJECT #: P01025

SAMPLING DATE: 15-27-02

SAMPLED BY:  
print full name

George Bejarano  
signature  


PRESERVATIVE

### NUMBER OF CONTAINERS

COMMENTS

SIGNATURE

E/B demonstrated lots of bubbles when Sampled per TUSQL instructions  
DATE: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_

SPECIAL TURNAROUND TIME: 8/27/15

NATIVE

1

1

1

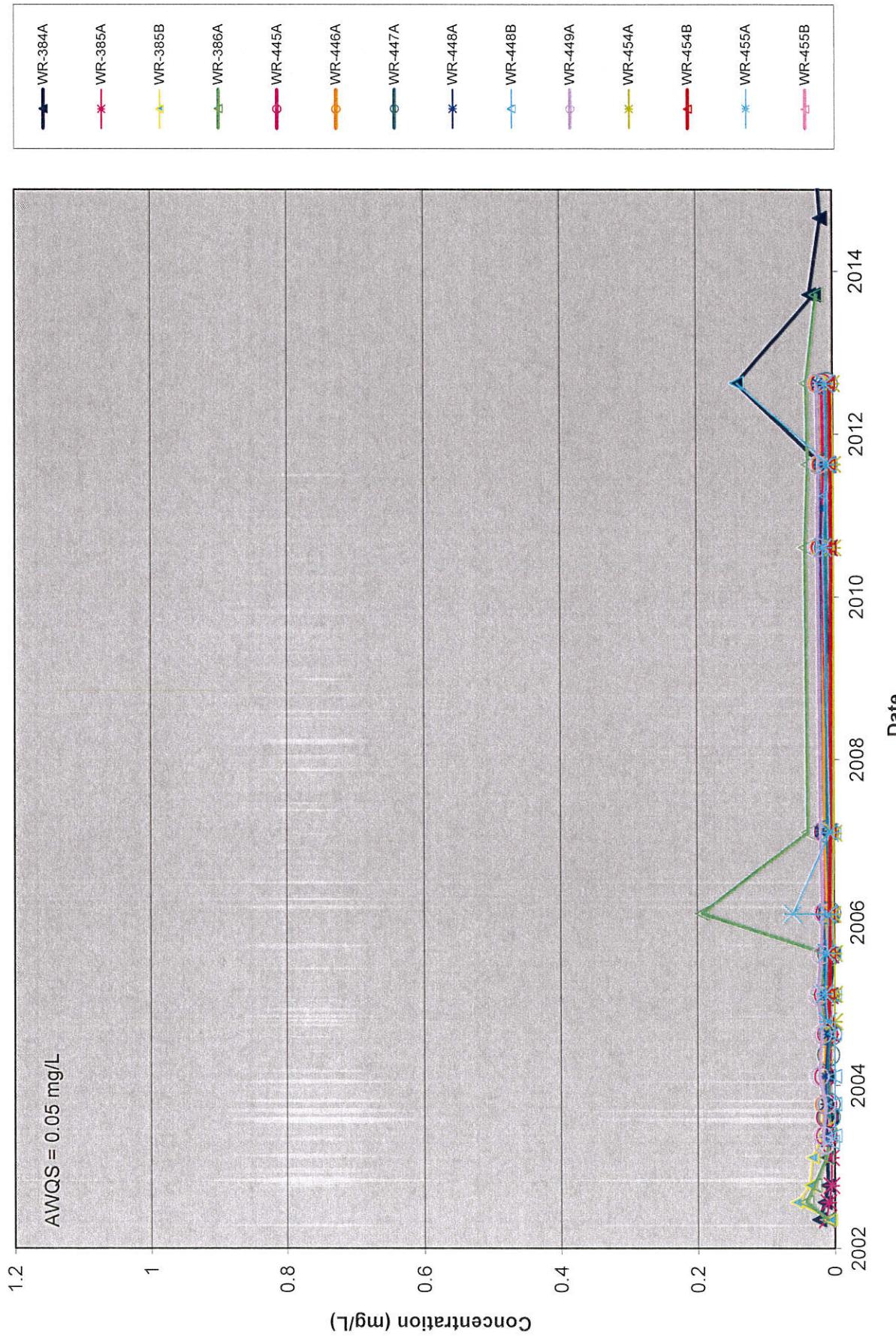
107

SIGNATURE	DATE & TIME	SIGNATURE
B. Johnson	8/27/15 1212	
J. S. C.	8/27/15 1600	
Denee Danner	8/31/15 1600	UPS 12 YR8 026014019 A 1434
		RECEIVING TEMPERATURE= 2 °C

## **APPENDIX D**

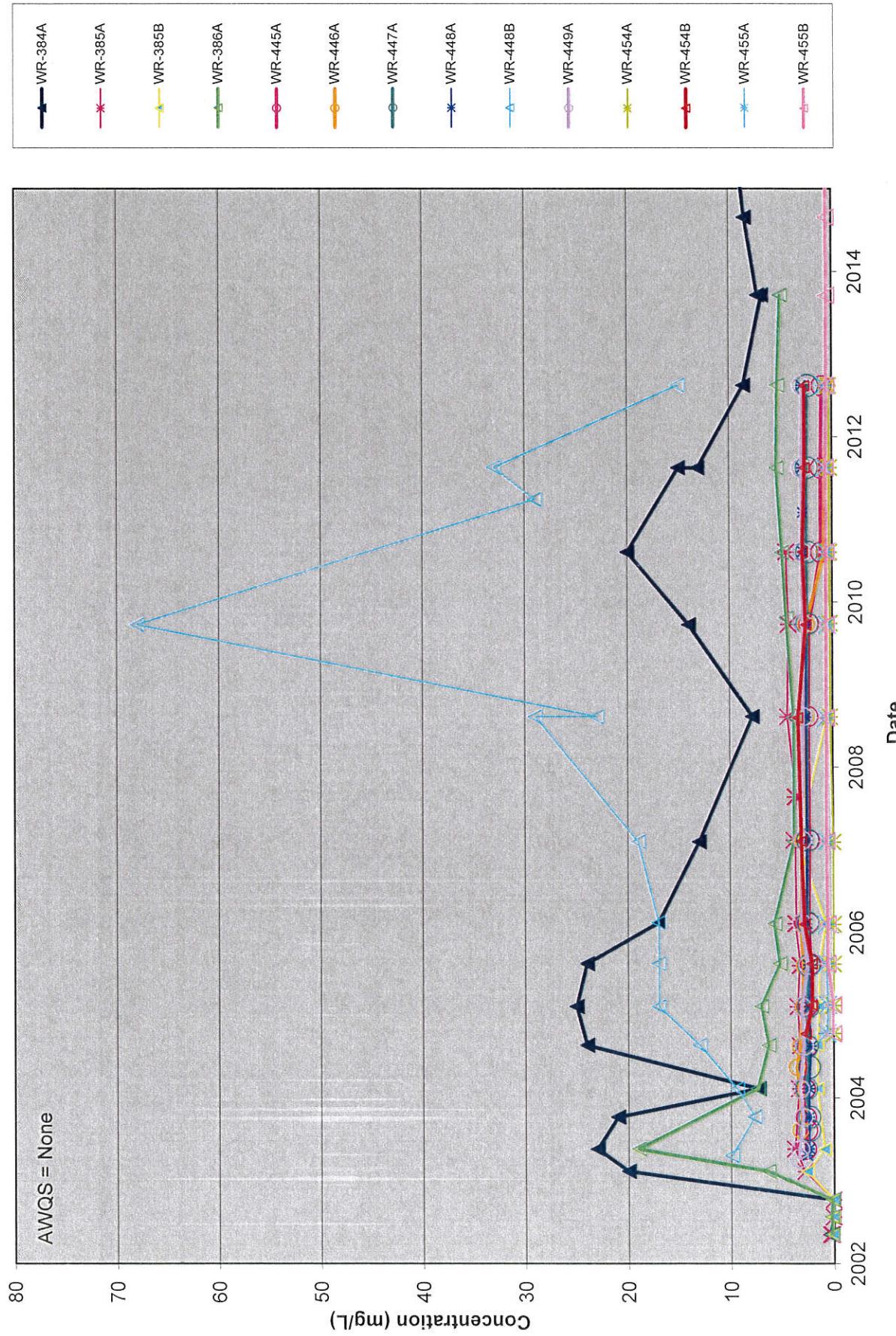
### **Trend Charts for Selected Compounds in the Groundwater**

## Arsenic



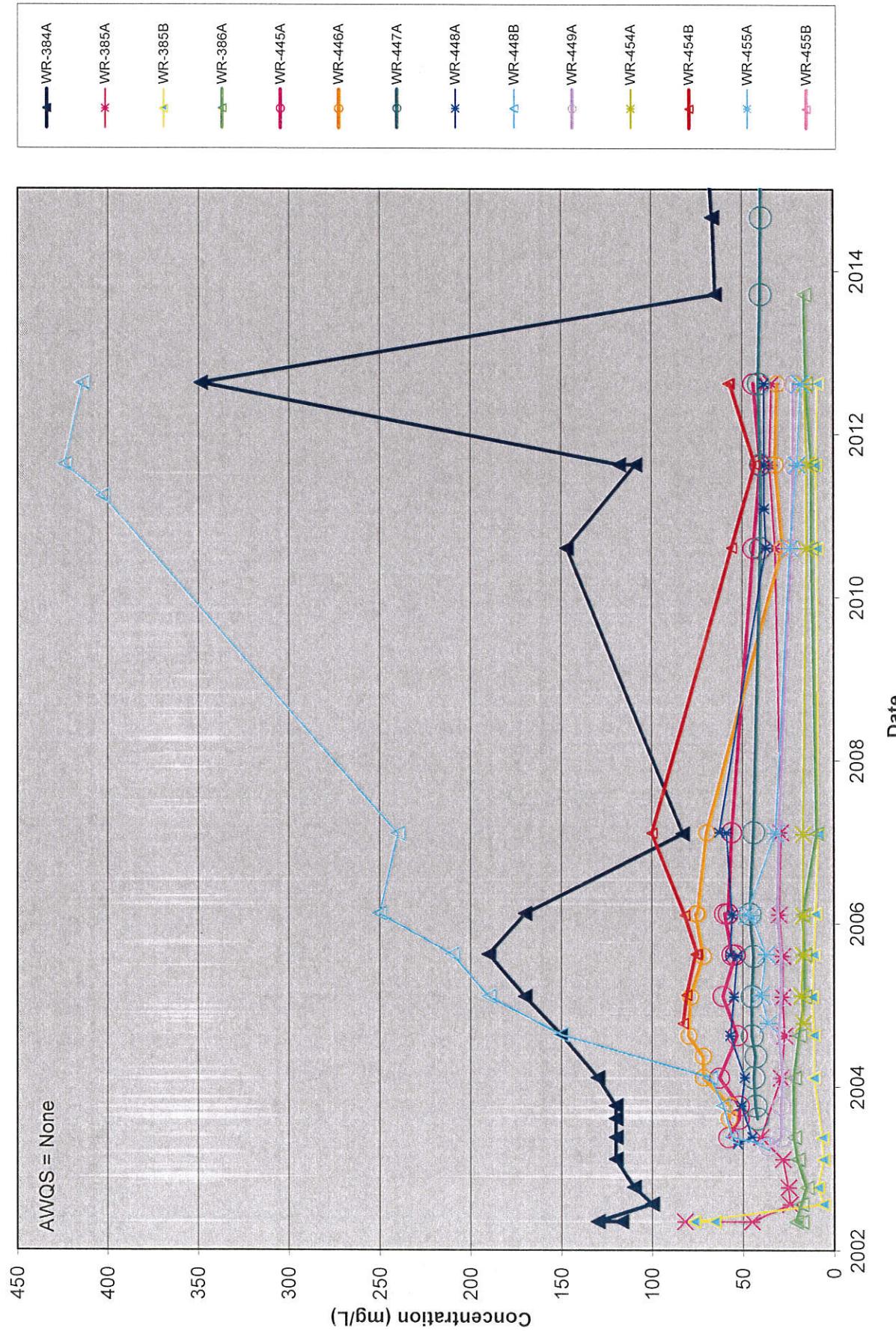
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Bromide



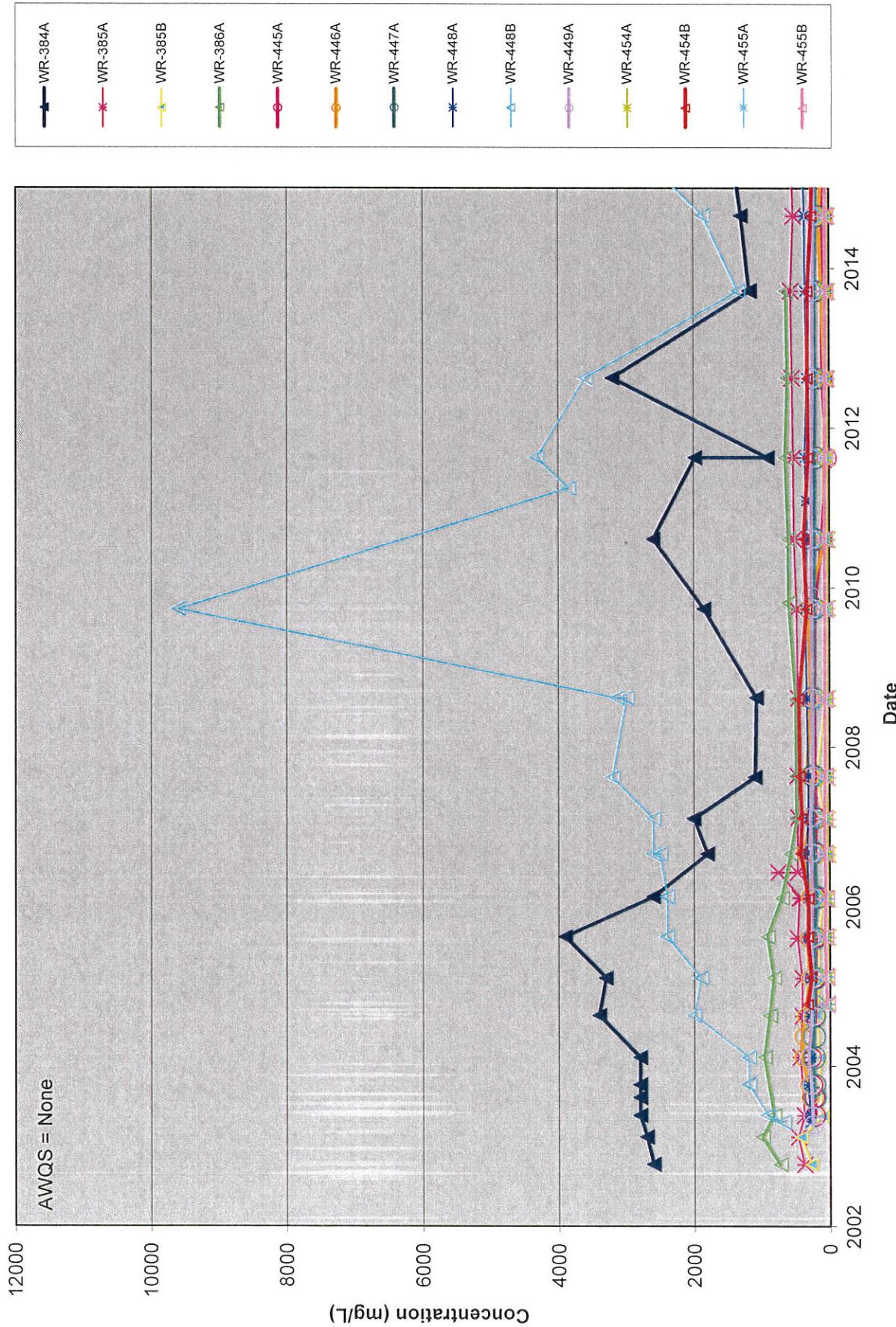
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Calcium



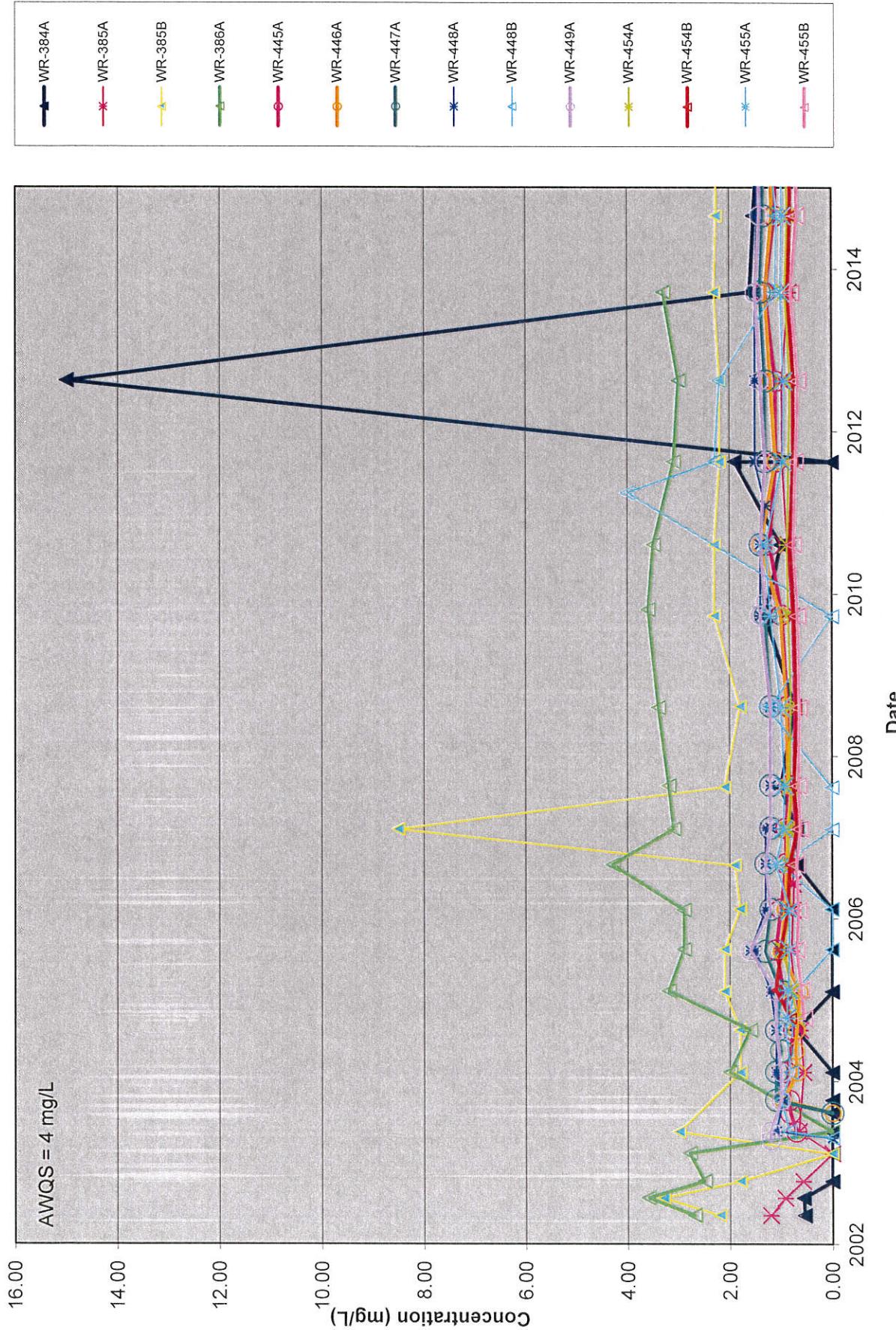
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Chloride



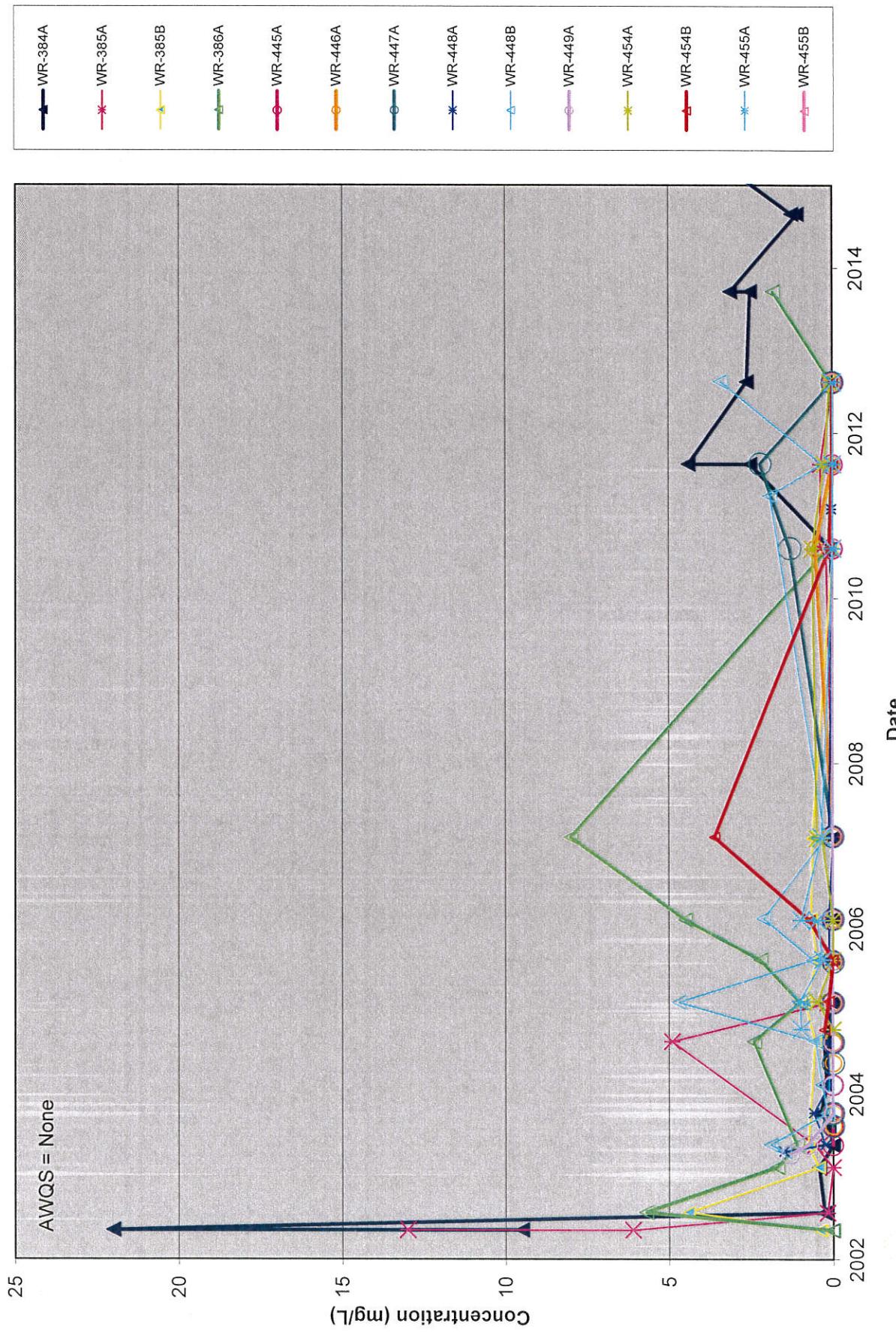
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Fluoride



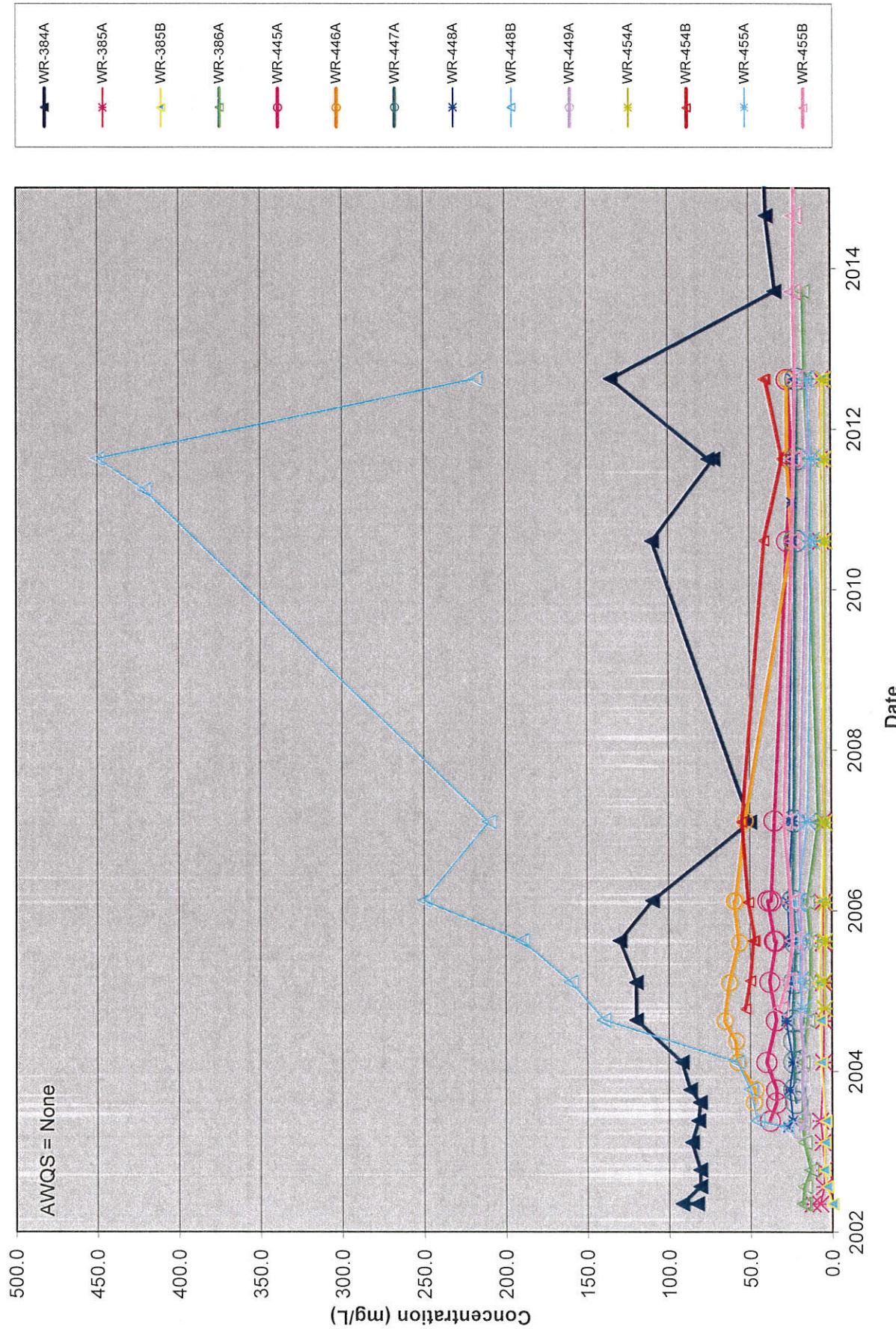
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Iron



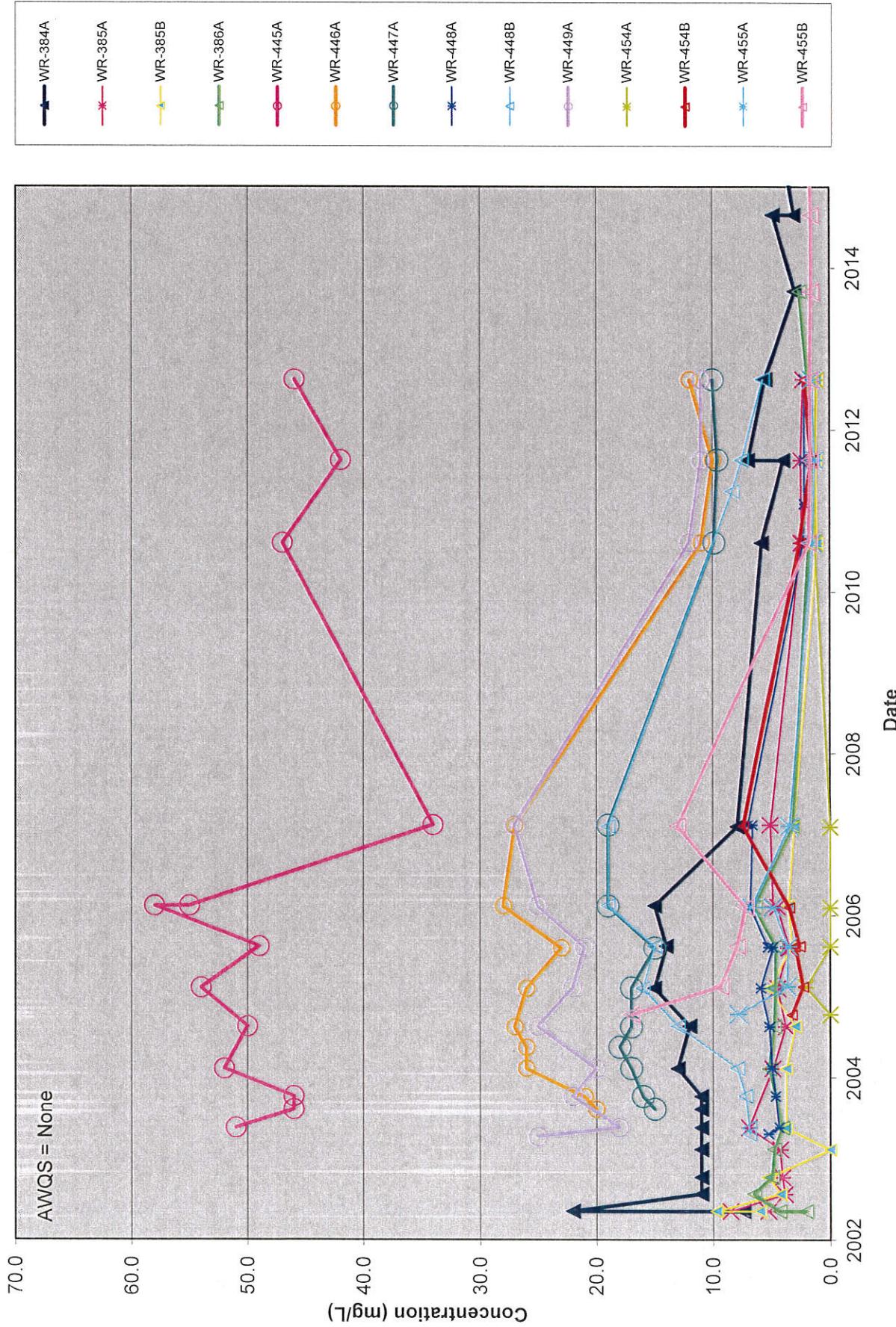
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Magnesium



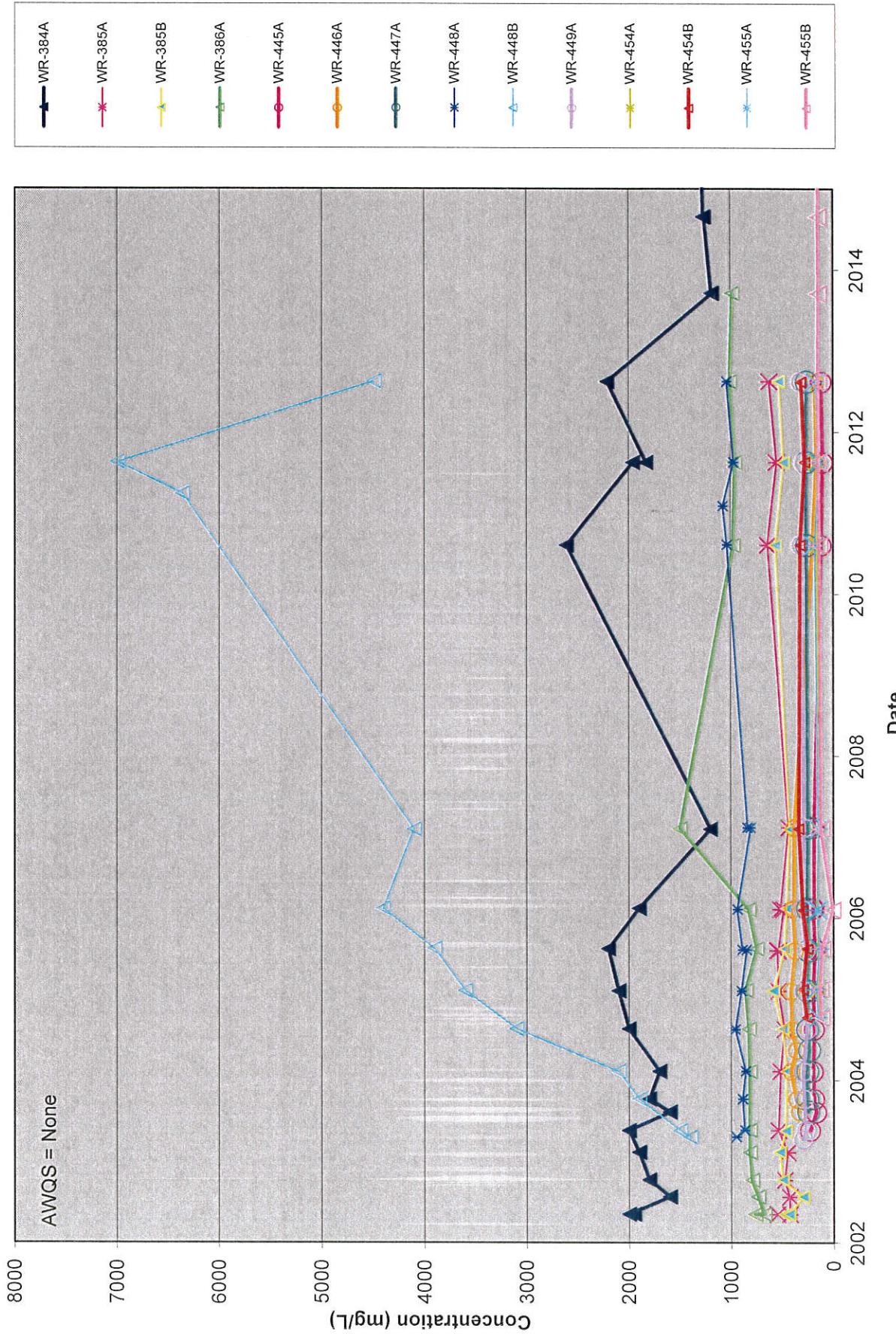
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Potassium



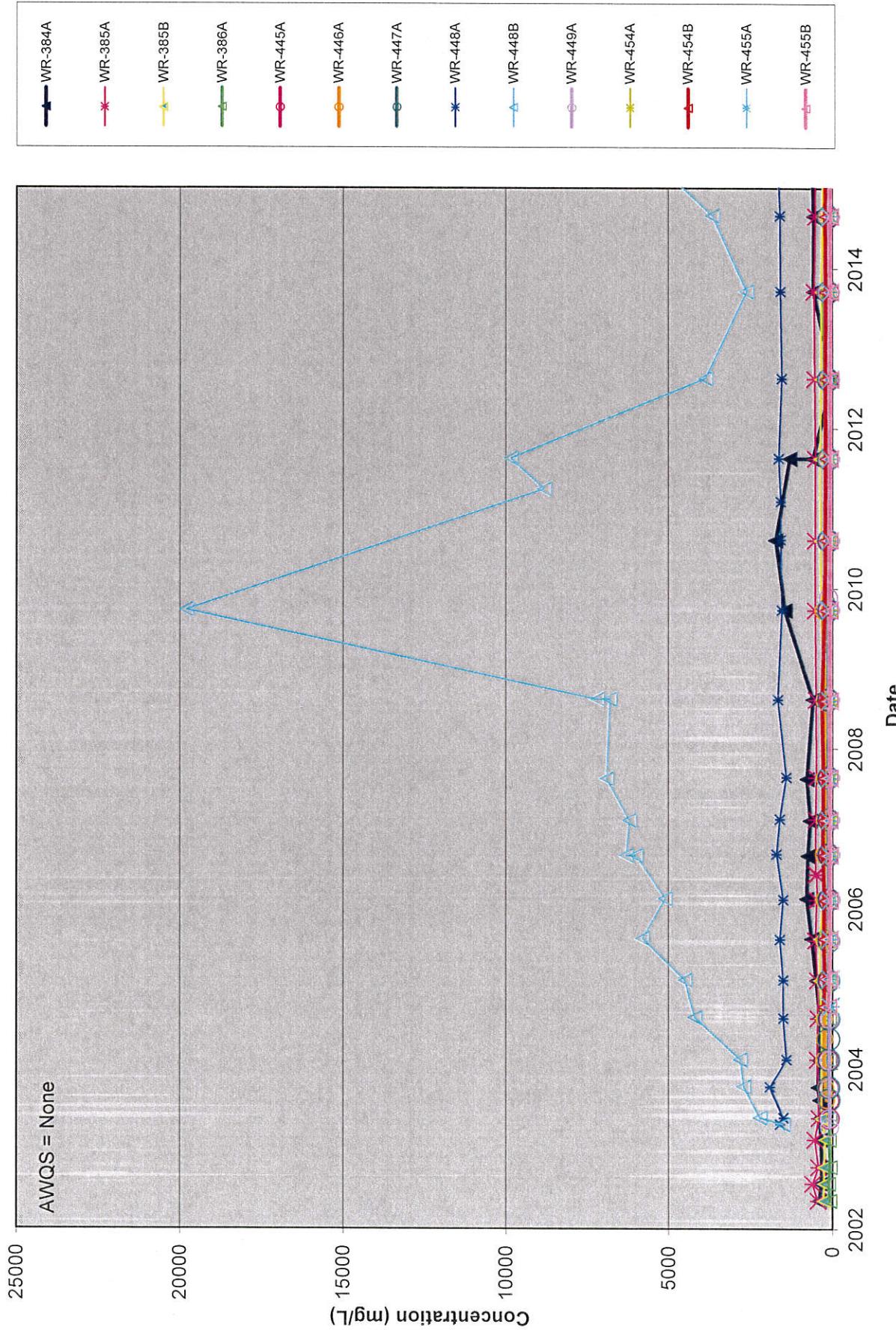
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Sodium



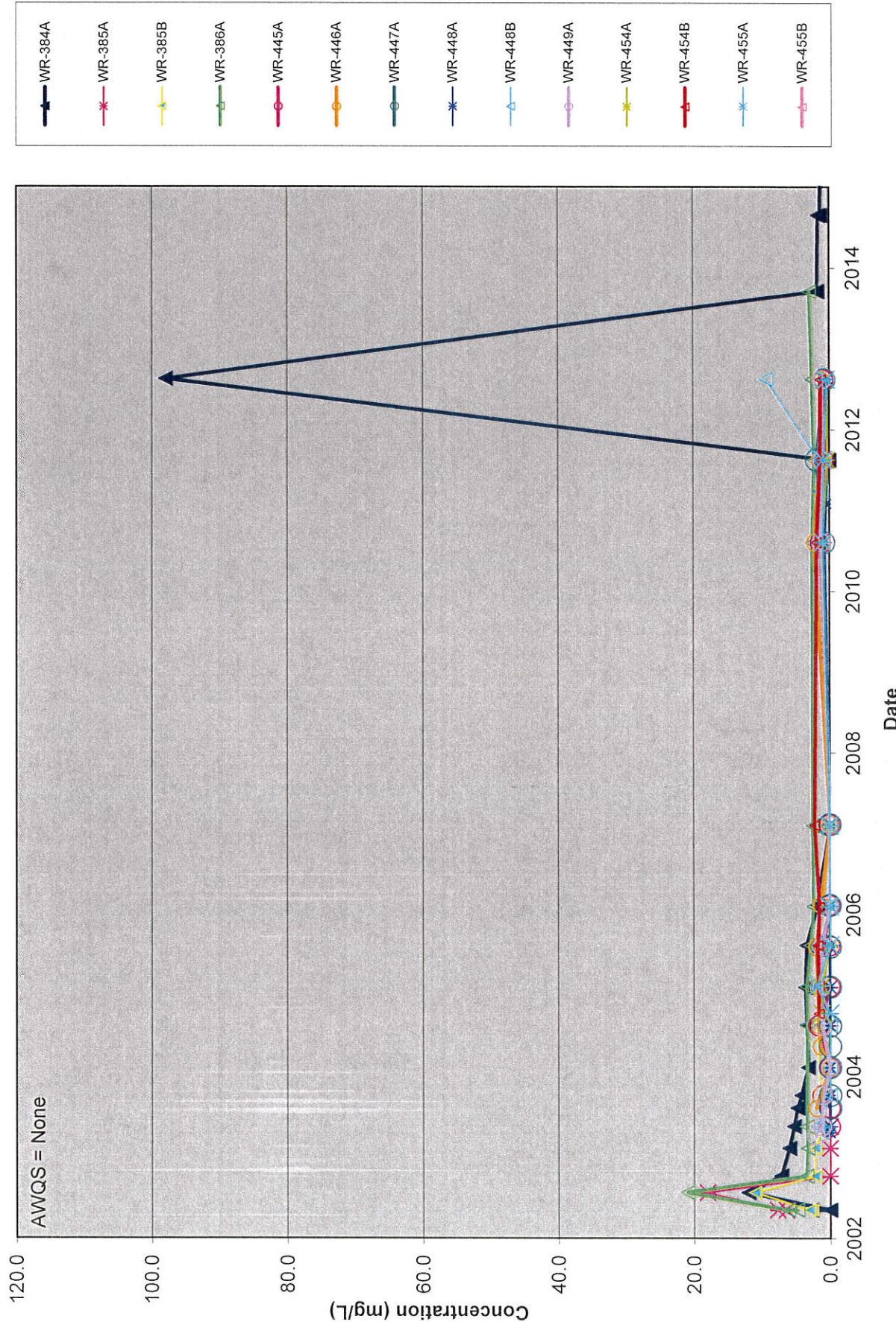
Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Sulfate



Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## Total Organic Carbon



Note: Shapes on lines indicate well's screened interval: shallow are triangles, deep are stars, and long are circles.

## **APPENDIX E**

### **Landfill Gas Monitoring Field Results for 2015**

Tumamoc Landfill  
Methane Monitoring  
(TU-all)  
QUARTERLY MONITORING

Device ID	Date/Time	CH4	CO2	O2	Balance	Baro. Press.	Rel. Pressure
LGGAM 3.01L 16/10/07		%	%	%	%	inches Hg	inches H2O
calibIDS	1/7/2015 7:43	15.1	15.0	0.0	69.9	27.60	n/a
calzero	1/7/2015 7:44	0.0	0.0	20.7	79.3	27.60	n/a
TU000110	1/7/2015 12:37	0.0	1.0	19.1	79.9	27.56	0.01
TU000125	1/7/2015 12:39	0.0	2.2	18.5	79.3	27.55	0.02
TU000210	1/7/2015 12:31	0.0	3.1	16.4	80.5	27.56	0.01
TU000225	1/7/2015 12:34	0.0	5.5	13.7	80.8	27.56	0.01
TU000310	1/7/2015 12:27	0.0	2.2	18.1	79.7	27.56	0.01
TU000330	1/7/2015 12:29	0.0	12.5	9.1	78.4	27.56	0.03
TU000410	1/7/2015 12:22	0.0	0.5	19.6	79.9	27.57	0.01
TU000430	1/7/2015 12:24	0.0	0.5	19.4	80.1	27.56	0.00
TU000510	1/7/2015 12:17	0.0	0.3	19.9	79.8	27.57	0.01
TU000535	1/7/2015 12:19	0.0	0.5	19.7	79.8	27.57	0.02
TU000610	1/7/2015 12:11	0.0	0.5	19.8	79.7	27.57	0.03
TU000635	1/7/2015 12:14	0.0	0.6	19.3	80.1	27.57	0.06
TU000710	1/7/2015 12:06	0.0	0.4	19.7	79.9	27.59	0.00
TU000735	1/7/2015 12:08	0.0	0.3	19.7	80.0	27.57	0.02
TU000810	1/7/2015 11:54	0.0	2.0	18.6	79.4	27.59	0.00
TU000825	1/7/2015 11:56	0.0	3.5	16.7	79.8	27.59	0.02
TU000910	1/7/2015 12:56	0.0	2.8	17.2	80.0	27.56	0.01
TU000925	1/7/2015 13:00	0.0	0.2	19.9	79.9	27.55	0.01
Note: GEM2000 ID: 11158		Monitored by: G. Bejarano					
GEM2000 was calibrated using 15% methane (see G. B.calibration sheet on this date)							
Pressure readings were taken using Dwyer Series Mark III "A" digital manometer							
Note: calibIDS is calibration gas being used a machine calibration check.							
calibIDS zero is ambient air also can be used a machine calibration check.							
Note: Accuracy of the machine is +/- 0.3% at methane concentrations of less than < 5.0%							
GAS record	LOT 43218-04 EXP 08 2016						

Tumamoc  
Methane Monitoring  
(All, quarterly)

Device ID	Date/Time	CH4	CO2	O2	Balance	Baro. Press.	Rel. Pressure
		%	%	%	%	inches Hg	inches H2O
TU000110	4/8/2015 9:53	0.0	1.6	18.8	79.6	27.35	0.00
TU000125	4/8/2015 9:55	0.0	0.9	19.5	79.6	27.36	0.00
TU000210	4/8/2015 10:00	0.0	3.1	17.1	79.8	27.36	0.00
TU000225	4/8/2015 10:02	0.0	4.5	15.1	80.4	27.35	0.01
TU000310	4/8/2015 10:07	0.0	3.4	16.7	79.9	27.36	0.00
TU000330	4/8/2015 10:10	0.0	3.8	16.3	79.9	27.35	0.00
TU000410	4/8/2015 10:15	0.0	0.5	19.6	79.9	27.36	0.01
TU000430	4/8/2015 10:17	0.0	0.3	19.8	79.9	27.35	0.01
TU000510	4/8/2015 10:22	0.0	0.4	19.7	79.9	27.35	0.00
TU000535	4/8/2015 10:24	0.0	0.2	19.9	79.9	27.35	0.00
TU000610	4/8/2015 10:30	0.0	0.6	19.3	80.1	27.36	0.01
TU000635	4/8/2015 10:32	0.0	0.6	19.3	80.1	27.35	0.01
TU000710	4/8/2015 10:37	0.0	1.0	19.0	80.0	27.36	0.00
TU000735	4/8/2015 10:39	0.0	0.3	19.6	80.1	27.36	0.00
TU000810	4/8/2015 10:44	0.0	1.6	18.8	79.6	27.36	0.00
TU000825	4/8/2015 10:46	0.0	3.2	17.3	79.5	27.36	0.00
TU000910	4/8/2015 9:39	0.0	3.3	17.4	79.3	27.36	0.00
TU000925	4/8/2015 9:43	0.0	0.0	20.3	79.7	27.36	0.05

Note: GEM2000 ID: 11159	Monitored by: H. Vimisluk	<i>H. Vimisluk</i>
GEM2000 was calibrated using 15% methane (see H V.calibration sheet on this date)	4-8-15	
Pressure readings were taken using Dwyer Series Mark III "H" digital manometer		
Accuracy of the machine is +/- 0.3% at methane concentrations of less than <5.0%.		

Tumamoc Landfill  
Methane Monitoring  
Wells (all, Quarterly)

Device ID	Date/Time	CH4	CO2	O2	Balance	Baro. Press.	Rel. Pressure
LGGAM 3.01L 16/10/07		%	%	%	%	inches Hg	inches H2O
TU000110	7/13/2015 8:31	0.0	1.6	18.8	79.6	27.4	0.01
TU000125	7/13/2015 8:34	0.0	1.6	18.6	79.8	27.4	0.01
TU000210	7/13/2015 8:38	0.0	3.7	16.2	80.1	27.4	0.01
TU000225	7/13/2015 8:41	0.0	4.9	14.7	80.4	27.4	0.01
TU000310	7/13/2015 8:46	0.0	4.0	16.4	79.6	27.4	0.01
TU000330	7/13/2015 8:47	0.0	0.1	19.7	80.2	27.4	0.01
TU000330	7/13/2015 8:48	0.0	0.1	19.6	80.3	27.4	0.00
TU000410	7/13/2015 8:53	0.0	0.7	19.1	80.2	27.4	0.00
TU000430	7/13/2015 8:55	0.0	0.3	19.2	80.5	27.4	0.02
TU000510	7/13/2015 9:00	0.0	0.5	19.3	80.2	27.4	0.00
TU000535	7/13/2015 9:03	0.0	0.3	19.4	80.3	27.3	0.00
TU000610	7/13/2015 9:07	0.0	0.8	19.1	80.1	27.3	0.00
TU000635	7/13/2015 9:11	0.0	0.4	19.1	80.5	27.3	0.02
TU000710	7/13/2015 9:15	0.0	0.9	18.9	80.2	27.3	0.00
TU000735	7/13/2015 9:18	0.0	0.3	19.4	80.3	27.3	0.00
TU000810	7/13/2015 9:24	0.0	1.8	18.0	80.2	27.3	0.02
TU000825	7/13/2015 9:27	0.0	3.2	17.2	79.6	27.3	0.03
TU000910	7/13/2015 7:49	0.0	4.3	16.7	79.0	27.4	0.00
TU000925	7/13/2015 7:52	0.0	8.2	14.0	77.8	27.4	0.00
Note: GEM2000 ID: 11158				Monitored by: K. Virgone			
GEM2000 was calibrated using 15% methane (see K.V.calibration sheet on this date)				<i>Kayla Virgone</i> 7/13/15			
Pressure readings were taken using Dwyer Series Mark III "H" digital manometer							
Note: calibIDS is calibration gas being used a machine calibration check.							
calibIDS zero is ambient air also can be used a machine calibration check.							
Note: Accuracy of the machine is +/- 0.3% at methane concentrations of less than < 5.0%							

Tumamoc Landfill  
Methane Monitoring  
Wells (all, Quarterly)

Device ID	Date/Time	CH4	CO2	O2	Balance	Baro. Press.	Rel. Pressure
		%	%	%	%	inches Hg	inches H2O
TU000110	10/7/2015 11:07	0.0	2.1	18.6	79.3	27.5	0.00
TU000125	10/7/2015 11:09	0.0	1.3	19.2	79.5	27.4	0.00
TU000210	10/7/2015 11:14	0.0	3.7	16.2	80.1	27.4	0.00
TU000225	10/7/2015 11:16	0.0	5.0	14.7	80.3	27.4	0.01
TU000310	10/7/2015 11:21	0.0	3.5	17.4	79.1	27.4	0.00
TU000330	10/7/2015 11:23	0.0	4.2	16.5	79.3	27.4	0.00
TU000410	10/7/2015 11:27	0.0	0.6	19.7	79.7	27.4	0.00
TU000430	10/7/2015 11:30	0.0	0.1	20.2	79.7	27.4	0.00
TU000510	10/7/2015 11:34	0.0	0.5	20.0	79.5	27.4	0.00
TU000535	10/7/2015 11:36	0.0	0.3	20.0	79.7	27.4	0.00
TU000610	10/7/2015 11:42	0.0	0.9	19.5	79.6	27.4	0.00
TU000635	10/7/2015 11:44	0.0	0.5	19.4	80.1	27.4	0.01
TU000710	10/7/2015 11:48	0.0	0.9	19.4	79.7	27.4	0.00
TU000735	10/7/2015 11:51	0.0	0.4	19.5	80.1	27.4	-0.01
TU000810	10/7/2015 11:57	0.0	2.4	17.8	79.8	27.4	0.01
TU000825	10/7/2015 12:00	0.0	4.0	15.8	80.2	27.4	0.02
TU000910	10/7/2015 10:56	0.0	4.1	16.5	79.4	27.4	0.00
TU000925	10/7/2015 10:58	0.0	6.3	15.4	78.3	27.4	0.01

Note: GEM2000 ID: 11159

Monitored by: K. Virgone

GEM2000 was calibrated using 15% methane (see K.V. calibration sheet for this date).

Pressure readings were taken with the D.S. Mark III "X" digital manometer.

Accuracy of the machine is +/-0.3% at methane concentrations of less than <5.0%.

## **APPENDIX F**

### **Landfill Inspection Report**



November 10, 2015

Mr. Arturo Burgos  
Mr. Tom Ryan  
City of Tucson, Environmental Services  
P.O. Box 27210  
Tucson, Arizona 85726-7210

**Re: Annual Closed Landfill Inspection – Tumamoc Landfill**

#### **INTRODUCTION**

On September 29, 2015, Engineering and Environmental Consultants, Inc. (EEC) performed the annual field inspection at the closed Tumamoc Landfill. Tumamoc Landfill was operated by the City of Tucson as a Municipal Solid Waste facility during the 1960s. The landfill was the subject of a final cap and closure project in 2013. Improvements included installation of an engineered evapo-transpiration soil cap, erosion protection including gabion mattress drainage protection, and hydroseeding of the landfill cap.

Annual inspections are required at City of Tucson owned non-regulated closed landfills in accordance with the guidance document entitled "COT Closed Landfills Inspection and Maintenance Reporting and Procedures, March 2011". This guidance document was internally prepared by the City of Tucson Environmental Services Department (COT-ES).

Key elements of this inspection report are:

- A narrative summary of facility conditions including recommended corrective action(s) to be undertaken prior to the next scheduled inspection
- The Landfill Inspection Table used to document observed conditions (Attachment 1)
- An inspection photo log (Attachment 2)

#### **INSPECTION SUMMARY**

The annual field inspection of Tumamoc Landfill is organized and conducted using the inspection report table included in the COT-ES inspection guidance document. A copy of the table filled out during this inspection is included with this report (Attachment 1). The table lists specific landfill items that must be inspected and provides space to comment on the conditions encountered during the inspection. The items inspected and the current conditions of these features at Tumamoc Landfill are summarized as follows:

#### **Perimeter Security Fence and Gates**

The landfill is secured from vehicular traffic with a locked gate on the south side along Starpass Road. The east, west, and north boundaries of the landfill are undeveloped desert and are unfenced.

#### **Inspection Roads**

The central portion of the south perimeter access road is badly rutted due to storm runoff. If not repaired, the road may become impassable as the result of future storm events (Photo 1).

The access road connecting ground water wells WR-385A and WR-385B with groundwater wells WR-448A and WR-448B is washed out and impassable due to storm run-off (Photo 2).

The remainder of the existing inspection roads on the property are generally in good condition.

#### **Stormwater Controls**

With the exception of some minor rills adjacent to the rock spillway on the north side of the landfill, the stormwater controls are in good condition. These rills should be monitored (Photo 3).

#### **Stormwater Retention Basins**

No stormwater retention basins are located on the landfill.

#### **Landfill Earthen Cap**

The landfill cap is generally in good condition with the exception of moderate erosion rilling on the south and west slope of the landfill (Photos 4, 5, 6).

#### **Landfill Gas Extraction System Wellfield**

There is no landfill gas extraction system at the landfill.

#### **Gas Extraction System Compound**

There is no landfill gas extraction system at the landfill.

#### **Landfill Gas Monitoring Wells**

The landfill gas monitoring wells near the property appear to be in good condition.

#### **Groundwater Monitoring Wells**

The groundwater wells adjacent to the property appear to be in good condition.

#### **Remediation Equipment**

None.

#### **Illegal Dumping**

No illegal dumping was observed on the property.

Mr. Arturo Burgos  
Mr. Tom Ryan  
November 10, 2015  
Page 3

#### Neighboring Land Uses

There have been no changes in land use of neighboring properties since the last inspection.

#### RECOMMENDED CORRECTIVE ACTIONS

- Erosion on the south perimeter access road should be repaired before the road becomes impassable.
- The washed out access connecting groundwater monitoring wells WR-385A and WR-385B with wells WR-448A and WR-448B should be repaired.
- The erosion of the west slope of the landfill should be repaired. The existing erosion control wattles have been undermined.
- The minor rills adjacent to the rock drainage in the north central portion of the property should be monitored for deepening and possible future repair.

No other corrective actions are recommended at this time.

Should you have any questions or require additional information, please contact me at 520-321-4625 (office) or 520-488-9205 (cell).

Sincerely,



Chad Hancock  
Field Services Manager, Environmental Services

#### Attachments:

- 1: Landfill Inspection Table
- 2: Site Photographs



Mr. Arturo Burgos  
Mr. Tom Ryan  
November 10, 2015  
Page 4

## **ATTACHMENT 1**

### **LANDFILL INSPECTION TABLE**

**CITY OF TUCSON ENVIRONMENTAL SERVICES  
ANNUAL CLOSED LANDFILL INSPECTION REPORT  
TUMAMOC LANDFILL**

INSPECTION ITEM	DISCREPANCY	CORRECTIVE ACTION
<b>Perimeter Security Fence and Gate</b> (holes, structure issues)	None	
<b>Inspection Roads</b> (washouts, obstructions, potholes)	Erosion of south perimeter road and well access road connecting groundwater monitoring wells WR-385A and WR-385B with wells WR-448A and WR-448B	Repair
<b>Storm Water Controls</b> (berms, let downs, spillways)	Rills forming adjacent to rock drainage, north central landfill cap	Monitor
<b>Storm Water Retention Basins</b> (washouts, excessive silt in, holding water)	None	
<b>Landfill Earthen Cap</b> (washouts, trash showing, debris and trash)	Erosion of south and west landfill slopes	Repair
<b>Landfill Gas Extraction System Wellfield</b> (piping, wells, vaults, washouts)	N/A	
<b>Landfill Gas Extraction System Compound</b> (fencing, blower equipment, flare, carbon canisters)	N/A	
<b>Landfill Gas Monitoring Wells</b> (including bollards, vaults, locks)	N/A	
<b>Groundwater Monitoring Wells</b> (including bollards, vaults, locks)	None	
<b>Remediation Equipment</b> (compound fence, erosions, leaks)	N/A	
<b>Illegal Dumping</b> (including overgrown vegetation, homeless camps, vectors)	None	
<b>Neighboring Land Uses</b> (changing adjacent land uses that will or currently are impacting the landfill site)	None	
<b>INSPECTOR SIGNATURE</b>		DATE 9/29/15 

Mr. Arturo Burgos  
Mr. Tom Ryan  
November 10, 2015  
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## **ATTACHMENT 2**

### **SITE PHOTOGRAPHS**



Photo 1: Erosion on south perimeter road

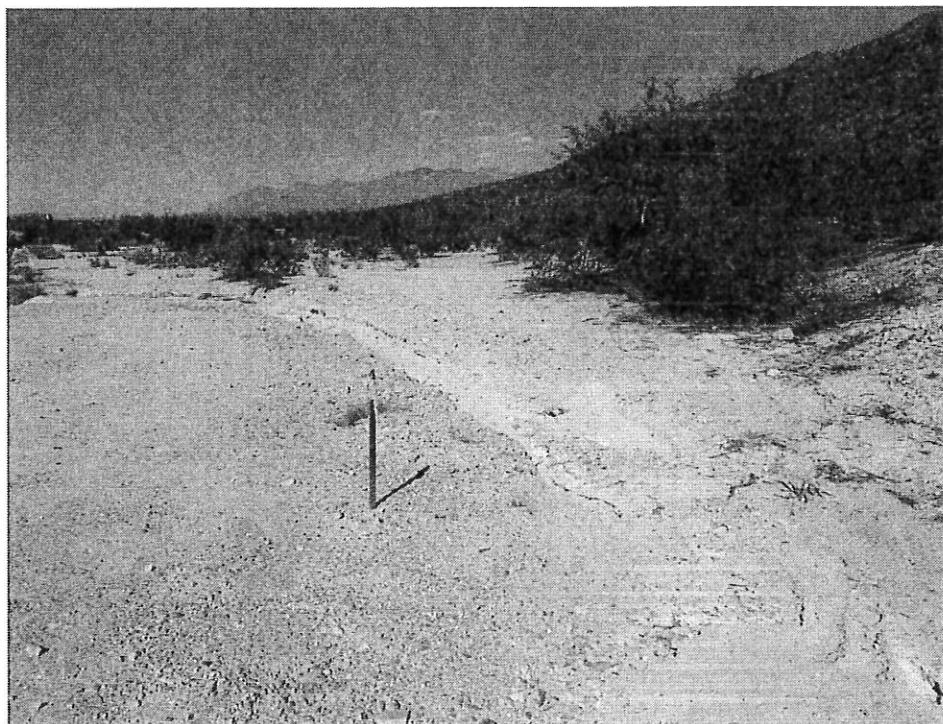


Photo 2: Eroded road connecting wells WR-385A and WR-385B with wells 448A and WR-448B



Photo 3: Minor erosion rills adjacent to rock spillway, north central landfill cap



Photo 4: Erosion rills on south slope of landfill



Photo 5: Erosion rills on west slope of landfill

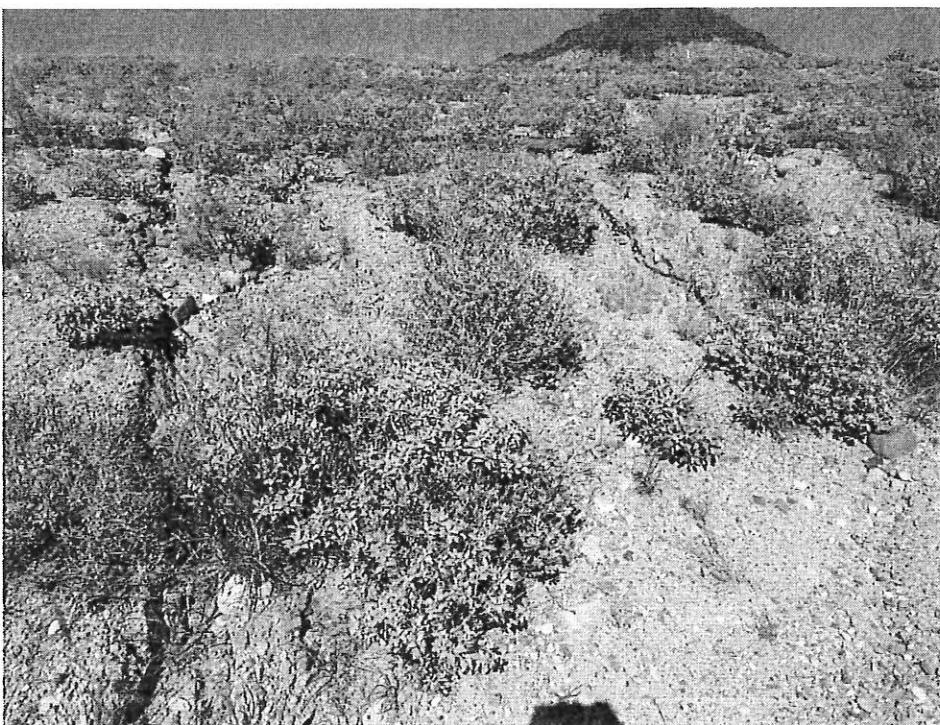


Photo 6: Erosion rills on west slope of landfill